Appendix A Air Quality and Greenhouse Gas Emissions Technical Analysis

Appendices

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Air Quality and Greenhouse Gas Background and Modeling Data

AIR QUALITY

Climate/Meteorology

SOUTH COAST AIR BASIN

The project site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds.[1]

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site with temperature data is the Riverside Citrus Exp. Monitoring Station (ID No. 047473). The lowest average temperature is reported at 41.3°F in December, and the highest average temperature is 94.4°F in August.[2]

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall historically averages 9.86 inches per year in the project area. [3]

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1 South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

2 Western Regional Climate Center (WRCC). 2020, January 31 (accessed). Riverside Citrus Exp., California ([Station ID] 047473): Period of Record Monthly Climate Summary, 07/01/1948 to 09/30/2009. Western U.S. Climate Summaries. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7473.

3 Western Regional Climate Center (WRCC). 2020, January 31 (accessed). Riverside Citrus Exp., California ([Station ID] 047473): Period of Record Monthly Climate Summary, 07/01/1948 to 09/30/2009. Western U.S. Climate Summaries. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7473.

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB. [4]

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions. [5]

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area. [6]

Air Quality Regulations

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast

[4] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[5] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[6] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

Air Quality Management District (South Coast AQMD). However, South Coast AQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

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

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources

Source: California Air Resources Board (CARB). 2016, October 1. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and 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. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three 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 one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
4 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 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

[7,8] The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels.[9]

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of ozone (O_3), South Coast AQMD has established a significance threshold for this pollutant.[10]

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure.[11,12] The SoCAB is designated as an attainment area for NO_2 under the National AAQS California AAQS.[13]

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2.[14,15] When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower

7 South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.
8 US Environmental Protection Agency (USEPA). 2019. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.
9 California Air Resources Board (CARB). 2017, May 5. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/desig.htm.
10 South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.
11 South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.
12 US Environmental Protection Agency (USEPA). 2019. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.
13 California Air Resources Board (CARB). 2017, May 5. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/desig.htm.
14 South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.
15 US Environmental Protection Agency (USEPA). 2019. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.

concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS.[16]

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems.[17]

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.[18] There has been emerging evidence that even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs.[19] However, the EPA or CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by the CARB as a carcinogen.[20] Particulate matter can also cause environmental effects such as visibility impairment,[21] environmental damage,[22]

[16] California Air Resources Board (CARB). 2018, June 12 (updated). Air Quality Standards and Area Designations. http://www.arb.ca.gov/desig/desig.htm.

[17] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[18] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[19] South Coast Air Quality Management District (SCAQMD). 2016, February. 2016 Air Quality Management Plan National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf.

[20] California Air Resources Board (CARB). 1998, April 22. The Report on Diesel Exhaust. http://www.arb.ca.gov/toxics/dieseltac/de-fnds.htm.

[21] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

[22] Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

and aesthetic damage.[23,24,25] The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS.[26]

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season.[27,28] The SoCAB is designated as extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour).[29]

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ.[30,31] The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually

[23] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

[24] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[25] US Environmental Protection Agency (USEPA). 2019, June 11 (updated). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.

[26] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

[27] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[28] US Environmental Protection Agency (USEPA). 2018, October 31 (updated). Ground Level Ozone Basics.

[29] California Air Resources Board (CARB). 2017, May 5. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/desig.htm.

[30] South Coast Air Quality Management District (SCAQMD). 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[31] US Environmental Protection Agency (USEPA). 2018, March (updated). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.

found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[32] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead.[33] Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the project.

TOXIC AIR CONTAMINANTS

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

[32] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2012).

[33] South Coast Air Quality Management District (SCAQMD). 2012, May 4. Final 2012 Lead State Implementation Plan: Los Angeles County. http://www3.aqmd.gov/hb/attachments/2011-2015/2012May/2012-May4-030.pdf.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.[34] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* [35] to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Multiple Airborne Toxics Exposure Study (MATES)

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and estimated the potential health risks from air toxics in the SoCAB. In 2008, the

[34] California Air Resources Board (CARB). 1999. California Air Resources Board (CARB). Final Staff Report: Update to the Toxic Air Contaminant List. https://ww3.arb.ca.gov/toxics/id/finalstaffreport.htm.

[35] California Air Resources Board (CARB). 2005, April. Air Quality and Land Use Handbook: A Community Health Perspective. https://www.arb.ca.gov/ch/handbook.pdf.

South Coast AQMD conducted its third update to the MATES study (MATES III). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, accounting for 84 percent of the cancer risk.[36]

The South Coast AQMD recently released the fourth update (MATES IV). The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million. Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources while 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor to this risk was diesel exhaust, accounting for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and associated decrease in air toxics exposure. As a result, the estimated basin-wide population-weighted risk decreased by approximately 57 percent compared to the analysis done for the MATES III time period.[37]

The Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for estimating cancer risks on March 6, 2015. The new method utilizes higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, the South Coast AQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher using the proposed updated methods identified in MATES IV (e.g., 2.7 times higher than 418 in one million overall excess cancer risk).[38]

Air Quality Management Planning

The South Coast AQMD is the agency responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, the South Coast AQMD adopted the 2016 AQMP as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual $PM_{2.5}$ standard by 2025[39],

[36] South Coast Air Quality Management District (SCAQMD). 2008, September. Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III). https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iii.

[37] South Coast Air Quality Management District (SCAQMD). 2015, October 3. Final Report Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES IV). http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf.

[38] South Coast Air Quality Management District (SCAQMD). 2015, October 3. Final Report Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES IV). http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf.

[39] The 2016 AQMP requests a reclassification from moderate to serious non-attainment for the 2012 National $PM_{2.5}$ standard.

- 2006 National 24-hour $PM_{2.5}$ standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

It is projected that total NO_X emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022[40], which requires reducing NO_X emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO_X emissions would also reduce $PM_{2.5}$ concentrations in the SoCAB. However, as the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, the South Coast AQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" non-attainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA. [41]

LEAD STATE IMPLEMENTATION PLAN

In 2008 EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB, outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

[40] South Coast Air Quality Management District (SCAQMD). 2017, March 4. Final 2016 Air Quality Management Plan. https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15.

[41] South Coast Air Quality Management District (SCAQMD). 2017, March 4. Final 2016 Air Quality Management Plan. https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15.

- **Unclassified:** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.

- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.

- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 2. The SoCAB is designated in attainment of the California AAQS for sulfates. The SoCAB is designated as nonattainment for lead (Los Angeles County only) under the National AAQS.

Table 2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment[1]
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board (CARB). 2018, June 12. Air Quality Standards and Area Designations. http://www.arb.ca.gov/desig/desig.htm

[1] The South Coast AQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under federal $PM_{2.5}$ standard.

[2] In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are best documented by measurements taken by the South Coast AQMD. The project site is located within Source Receptor Area (SRA) 24 – Perris Valley. The air quality monitoring station closest to the project site is the Perris Monitoring Station, which monitors O_3 and PM_{10}. Information regarding NO_x and $PM_{2.5}$ is supplemented by data from the Riverside-Rubidoux Monitoring Station. The most current five years of data from these monitoring stations are included in Table 3, *Ambient Air Quality Monitoring Summary*. The data show regular violations of the state and federal O_3, state PM_{10}, and federal $PM_{2.5}$ standards in the last five years.

Table 3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2014	2015	2016	2017	2018
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	16	25	23	33	31
State 8-hour ≥ 0.07 ppm (days exceed threshold)	59	49	55	80	67
Federal 8-Hour > 0.075 ppm (days exceed threshold)	38	31	30	52	47
Max. 1-Hour Conc. (ppm)	0.117	0.124	0.131	0.120	0.117
Max. 8-Hour Conc. (ppm)	0.094	0.102	0.098	0.105	0.103
Nitrogen Dioxide (NO_2)[2]					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	0.0617	0.0596	0.0599	0.05774	0.0731
Coarse Particulates (PM_{10})[1]					
State 24-Hour > 50 µg/m^3 (days exceed threshold)	6	4	5	11	2
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	1	0	0	0
Max. 24-Hour Conc. (µg/m^3)	87.0	188.0	76.0	75.4	64.4
Fine Particulates ($PM_{2.5}$)[2]					
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	5	9	5	7	3
Max. 24-Hour Conc. (µg/m^3)	35.1	54.7	51.5	50.3	66.3

Source: California Air Resources Board (CARB). 2019. Air Pollution Data Monitoring Cards (2014, 2015, 2016, 2017, and 2018). https://www.arb.ca.gov/adam/topfour/topfour1.php
ppm: parts per million; parts per billion, µg/m^3: micrograms per cubic meter
Notes: * Data not available.
[1] Data obtained from the Perris Monitoring Station
[2] Data obtained from the Riverside-Rubidoux Monitoring Station

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors to the proposed project site are the residences along Bay Avenue to the south.

Methodology

Projected construction-related air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2.25.[42] CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only) use. The calculated emissions of the project are compared to thresholds of significance for individual projects using the South Coast AQMD's *CEQA Air Quality Analysis Guidance Handbook*.

Thresholds of Significance

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in South Coast AQMD's *CEQA Air Quality Handbook* and the significance thresholds on the South Coast AQMD's website.[43] CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. The South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

REGIONAL SIGNIFICANCE THRESHOLDS

The South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 4 lists South Coast AQMD's regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, South Coast AQMD has not developed thresholds for them.

[42] California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod). Version 2016.3.2. Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

[43] South Coast Air Quality Management District (SCAQMD). 2019, April (revised). SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.

Table 4 South Coast AQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2019.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) [44]

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists responsible for a landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB.[45]

Mass emissions in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact. The South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB.

[44] South Coast Air Quality Management District (SCAQMD). 2015. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/publications/brochures/the-health-effects-of-air-pollution-brochure.pdf.

[45] South Coast Air Quality Management District (SCAQMD). 2015, October. "Blueprint for Clean Air: 2016 AQMP White Paper." 2016 AQMP White Papers Web Page. https://www.aqmd.gov/docs/default-source/Agendas/aqmp/white-paper-working-groups/wp-blueprint-final.pdf?sfvrsn=2.

To achieve the health-based standards established by the EPA, the South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS.

CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hot spot analysis conducted for the attainment by the South Coast AQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards.[46] As identified in the South Coast AQMD's 2003 AQMP[47] and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.[48]

LOCALIZED SIGNIFICANCE THRESHOLDS

The South Coast AQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5.

[46] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

[47] South Coast Air Quality Management District (SCAQMD). 2003, August. 2003 Air Quality Management Plan. Appendix V. https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/2003-aqmp.

[48] Bay Area Air Quality Management District (BAAQMD). 2017, May. California Environmental Quality Act Air Quality Guidelines. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

Table 5 South Coast AQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (South Coast AQMD)[1]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (South Coast AQMD)[1]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (South Coast AQMD)[1]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (South Coast AQMD)[1]	2.5 µg/m^3

Source: South Coast Air Quality Management District (South Coast AQMD). 2019, April (revised). South Coast AQMD Air Quality Significance Thresholds.
ppm – parts per million; µg/m^3 – micrograms per cubic meter
[1] Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

In accordance with South Coast AQMD's LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the project site in SRA 24 are shown in Table 6, *South Coast AQMD Screening-Level Construction Localized Significance Thresholds,* for receptors within 82 feet (25 meters).

Table 6 South Coast AQMD Screening-Level Construction Localized Significance Thresholds

	Threshold (lbs/day)[1]			
Acreage Disturbed	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	118	602	4	3
1.50 Acres Disturbed Per Day	134	690	5	3
2.50 Acres Disturbed Per Day	187	999	8	5
3.50 Acres Disturbed Per Day	220	1,230	10	6

Sources:
South Coast Air Quality Management District (South Coast AQMD). 2008, July. Final Localized Significance Threshold Methodology. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf.
South Coast Air Quality Management District (South Coast AQMD). 2011. Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf.
[1] LSTs are based on receptors within 82 feet (25 meters) in SRA 24.

Because the project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the project.

Health Risk

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)*). CEQA does not require CEQA-level environmental document to analyze the environmental effects of attracting development and people to an area. However, the environmental document must analyze the impacts of environmental hazards on future users, when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 7 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: South Coast AQMD 2019.

GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[49] carbon (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6),

[49] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[50, 51] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

    - ***Chlorofluorocarbons (CFCs***) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

    - ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

[50] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (California Air Resources Board (CARB). 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

[51] Intergovernmental Panel on Climate Change (IPCC). 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/03/WGI_TAR_full_report.pdf.

- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.[52,53]

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 8. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR4) GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 250 MT of CO_2.[54]

[52] Intergovernmental Panel on Climate Change (IPCC). 2001. Third Assessment Report: Climate Change 2001. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/03/WGI_TAR_full_report.pdf.
[53] US Environmental Protection Agency (USEPA). 2019. Overview of Greenhouse Gases. http://www3.epa.gov/climatechange/ghgemissions/gases.html.
[54] Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

Table 8 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	12	21	25
Nitrous Oxide (N_2O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF_4	50,000	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	NA	23,900	22,800

Source: Intergovernmental Panel on Climate Change (IPCC). 1995. Second Assessment Report: Climate Change 1995 https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_sar_wg_I_full_report.pdf.
Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr_full_report.pdf.

Notes: The GWP values in the IPCC's Fifth Assessment Report (2013)[55] reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, South Coast AQMD uses the AR4 GWP values to maintain consistency in statewide GHG emissions modeling. In addition, the 2017 Scoping Plan Update was based on the AR4 GWP values.

1 Based on 100-year time horizon of the GWP of the air pollutant relative to CO_2.

2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

California's Greenhouse Gas Sources and Relative Contribution

In 2019, the statewide GHG emissions inventory was updated for 2000 to 2017 emissions using the GWPs in IPCC's AR4.[56] Based on these GWPs, California produced 424.10 $MMTCO_2e$ GHG emissions in 2017. California's transportation sector was the single largest generator of GHG emissions, producing 40.1 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.7 percent of the state's emissions inventory. Other major sectors of GHG emissions include

[55] Intergovernmental Panel on Climate Change (IPCC). 2013. Fifth Assessment Report: Climate Change 2013. New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_all_final.pdf.

[56] Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (2006).

commercial and residential (9.7 percent), agriculture and forestry (7.6 percent) high GWP (4.7 percent), and recycling and waste (2.1 percent).[57]

California's GHG emissions have followed a declining trend since 2007. In 2017, emissions from routine GHG emitting activities statewide were 424 $MMTCO_2e$, 5 $MMTCO_2e$ lower than 2016 levels. This represents an overall decrease of 14 percent since peak levels in 2004 and 7 $MMTCO_2e$ below the 1990 level and the state's 2020 GHG target. During the 2000 to 2017 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 $MTCO_2e$ per capita to 10.7 $MTCO_2e$ per capita in 2017, a 24 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 41 percent decline since the 2001 peak, while the state's GDP has grown 52 percent during this period. For the first time since California started to track GHG emissions, California uses more electricity from zero-GHG sources (hydro, solar, wind, and nuclear energy).[58]

Regulatory Settings

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

The EPA announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation. [59]

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per South Coast AQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

[57] California Air Resources Board (CARB). 2019, August 26. 2019 Edition California Greenhouse Gas Inventory for 2000-2017: By Category as Defined in the 2008 Scoping Plan. https://www.arb.ca.gov/cc/inventory/data/data.htm..

[58] California Air Resources Board (CARB). 2019, August 26. California Greenhouse Emissions for 2000 to 2017: Trends of Emissions and Other Indicators. https://www.arb.ca.gov/cc/inventory/data/data.htm.

[59] US Environmental Protection Agency (USEPA). 2009, December. EPA: Greenhouse Gases Threaten Public Health and the Environment. Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity. https://archive.epa.gov/epapages/newsroom_archive/newsreleases/08d11a451131bca585257685005bf252.html.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017–2025 that will require a fleet average of 54.5 miles per gallon in 2025.

While the EPA is reexamining the 2017–2025 emissions and CAFE standards, a consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternative path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America and Volkswagen Group of America. The framework supports continued annual reductions of vehicle greenhouse gas emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and provides industry the certainty needed to make investments and create jobs. This commitment means that the auto companies party to the voluntary agreement will only sell cars in the United States that meet these standards.[60]

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large, stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence Executive Order. It officially rescinds the Clean Power Plan rule issued during the Obama Administration and sets emissions guidelines for states in developing plans to limit CO_2 emissions from coal-fired power plants.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32) and Senate Bill 375 (SB 375).

Executive Order S-3-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020

[60] California Air Resources Board (CARB). 2019, September 5 (accessed). California and major automakers reach groundbreaking framework agreement on clean emission standards. https://ww2.arb.ca.gov/news/california-and-major-automakers-reach-groundbreaking-framework-agreement-clean-emission.

- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. The *2008 Scoping Plan* identified that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the state.[61] In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 $MTCO_2e$ per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan was adopted at the May 22, 2014, board hearing. The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher at 431 $MMTCO_2e$. [62]

As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the update also addresses the state's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high-level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals. [63] CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward

[61] California Air Resources Board (CARB). 2008, October. Climate Change Proposed Scoping Plan, a Framework for Change. https://ww3.arb.ca.gov/cc/scopingplan/document/psp.pdf.

[62] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

[63] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit. [64]

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.[65]

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning, to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks;

[64] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

[65] California Air Resources Board (CARB). 2017, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally-appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 9. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If

the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 9 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions $MMTCO_2e$
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	**260**
Gap to 2030 Target	**60**

Source: California Air Resources Board. 2017, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

Table 10 provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 $MMTCO_2e$	2030 Proposed Plan Ranges $MMTCO_2e$	% Change from 1990
Agricultural	26	24-25	-8% to -4%
Residential and Commercial	44	38-40	-14% to -9%
Electric Power	108	30-53	-72% to -51%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-15% to -8%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-32% to -27%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-32% to -21%
Cap-and-Trade Program	NA	24-79	NA
Total	**431**	**260**	**-40%**

Source: California Air Resources Board (CARB). 2017, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 requires the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030, as specified. The bill also establishes targets for reducing organic waste in landfill. On

March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant Reduction Strategy," which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use.[66] In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. The South Coast AQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these char broilers by over 80 percent.[67] Additionally, South Coast AQMD Rule 445 limits installation of new fireplaces in the SoCAB.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035.[68] The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met.[69]

[66] California Air Resources Board (CARB). 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm.

[67] California Air Resources Board (CARB). 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm.

[68] California Air Resources Board (CARB). 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375. https://ww3.arb.ca.gov/cc/sb375/staffreport_sb375080910.pdf.

[69] California Air Resources Board (CARB). 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375. https://ww3.arb.ca.gov/cc/sb375/staffreport_sb375080910.pdf.

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 MMTCO_2e in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent).[70] CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018 are subject to these new targets.

SCAG's RTP/SCS

2016-2040 RTP/SCS

Under SB 375, MPOs are required to prepare a sustainable communities strategy in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS.[71] In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce VMT from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

The 2016-2040 RTP/SCS targets for SCAG were 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035.[72] The 2016-2040 RTP/SCS projects that the SCAG region will meet or exceed the passenger per capita targets set in 2010 by CARB. It is projected that VMT per capita in the region for year 2040 would be reduced by 7.4 percent with implementation of the 2016-2040 RTP/SCS compared to a no-plan year 2040 scenario. Under the 2016-2040 RTP/SCS, SCAG anticipates lowering GHG emissions 8 percent below 2005 levels by 2020, 18 percent by 2035, and 21 percent by 2040. The 18 percent reduction by 2035 over 2005 levels represents a 2 percent increase in reduction compared to the 2012 RTP/SCS projection. Overall, the SCS is meant to provide growth strategies

[70] California Air Resources Board (CARB). 2018, February. Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. https://www.arb.ca.gov/cc/inventory/data/data.htm.
[71] Southern California Association of Governments. 2016, April 7. Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life. http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx.
[72] California Air Resources Board. 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

that will achieve the regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and livable corridors, and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles.[73] However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

Draft 2020-2045 RTP/SCS (Connect SoCal)

On November 7, 2019, SCAG released the Draft 2020-2045 RTP/SCS (Connect SoCal), which serves as an update to the 2016-2040 RTP/SCS. The Draft 2020-2045 RTP/SCS focuses on the continued efforts of the previous RTP/SCS plans for an integrated approach in transportation and land uses strategies in development of the SCAG region through horizon year 2045. Per the Draft, it projects that the SCAG region will meet the GHG per capita reduction targets established for the SCAG region of 8 percent by 2020 and 19 percent by 2035. Additionally, it is also projected that implementation of the plan would reduce VMT per capita for year 2045 by 4.1 percent compared to baseline condition for the year. Rooted in the 2008 and 2012 RTP/SCS plans, the Draft 2020-2045 RTP/SCS includes "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together, and increasing investments in transit and complete streets.[74]

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of

[73] Southern California Association of Governments. 2016, April 7. Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life. http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx.
[74] Southern California Association of Governments. 2019, November 27. Draft Connect SoCal: The 2020-2045 Regional Transportation/Sustainable Communities Strategy of the Southern California Association of Governments. https://www.connectsocal.org/Documents/Draft/dConnectSoCal_Draft-Plan.pdf.

California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Senate Bills 1078, 107, X1-2, and Executive Order S-14-08

A major component of California's Renewable Energy Program is the RPS established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the state's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law in September 2015. SB 350 establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, which raises California's RPS requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and

the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2019 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards, which were recently adopted on May 9, 2018, went into effect on January 1, 2020.

The 2019 standards move towards cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multi-family buildings of 3 stories and less. Four key areas the 2019 standards will focus on include 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements.[75] Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards while single-family homes will be 7 percent more energy efficient.[76] When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards.[77]

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[78] The mandatory provisions of CALGreen became effective January 1, 2011. The CEC adopted the voluntary standards of the 2019 CALGreen on October 3, 2018. The 2019 CALGreen standards become effective January 1, 2020.

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[75] California Energy Commission (CEC). 2018. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. http://www.energy.ca.gov/releases/2018_releases/2018-05-09_building_standards_adopted_nr.html.

[76] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

[77] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

[78] The green building standards became mandatory in the 2010 edition of the code.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Regulations

California's Integrated Waste Management Act of 1989 (AB 939; Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

The California Solid Waste Reuse and Recycling Access Act (AB 1327; Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Section 5.408 of the 2019 CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

In October of 2014, Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

Water Efficiency Regulations

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a

water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;

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

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[79]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, South Coast AQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency[80]:

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

[79] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

[80] South Coast Air Quality Management District (SCAQMD). 2010, September 28. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 15. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf.

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD requires an assessment of GHG emissions. South Coast AQMD is proposing a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions. [81]

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

  The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.[82] The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.[83]

For purposes of this analysis, because the proposed project has an anticipated opening year post-2020 (year 2022), the bright-line screening-level criterion of 3,000 $MTCO_2e$/yr is used as the significance threshold for this project. Therefore, if the project operation-phase emissions exceed the 3,000 $MTCO_2e$/yr threshold, GHG emissions would be considered potentially significant in the absence of mitigation measures.

[81] South Coast Air Quality Management District (SCAQMD). 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf.

[82] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

[83] SCAQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

Regional Construction Emissions Worksheet:

Demolition

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020 Summer**						
	Off-Road		3.31	33.20	21.75	0.04	1.66	1.54
	Total		**3.31**	**33.20**	**21.75**	**0.04**	**1.66**	**1.54**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.21	0.04	0.00	0.01	0.00
	Worker		0.08	0.05	0.60	0.00	0.16	0.04
	Total		**0.08**	**0.25**	**0.64**	**0.00**	**0.17**	**0.05**
TOTAL			***3.39***	***33.45***	***22.40***	***0.04***	***1.83***	***1.59***
Onsite		**2020 Winter**						
	Off-Road		3.31	33.20	21.75	0.04	1.66	1.54
	Total		**3.31**	**33.20**	**21.75**	**0.04**	**1.66**	**1.54**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.20	0.04	0.00	0.01	0.00
	Worker		0.07	0.05	0.49	0.00	0.16	0.04
	Total		**0.08**	**0.25**	**0.53**	**0.00**	**0.17**	**0.05**
TOTAL			***3.39***	***33.45***	***22.29***	***0.04***	***1.83***	***1.59***
Onsite		**2020**						
	Off-Road		3.31	33.20	21.75	0.04	1.66	1.54
	Total		**3.31**	**33.20**	**21.75**	**0.04**	**1.66**	**1.54**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.21	0.04	0.00	0.01	0.00
	Worker		0.08	0.05	0.60	0.00	0.16	0.04
	Total		**0.08**	**0.25**	**0.64**	**0.00**	**0.17**	**0.05**
TOTAL			***3.39***	***33.45***	***22.40***	***0.04***	***1.83***	***1.59***

Demolition Haul

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020** Summer						
	Fugitive Dust						0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.01**
Offsite								
	Hauling		0.00	0.20	0.02	0.00	0.01	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.20**	**0.02**	**0.00**	**0.01**	**0.00**
TOTAL			***0.00***	***0.20***	***0.02***	***0.00***	***0.09***	***0.02***
Onsite		**2020** Winter						
	Fugitive Dust						0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.01**
Offsite								
	Hauling		0.00	0.20	0.03	0.00	0.01	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.20**	**0.03**	**0.00**	**0.01**	**0.00**
TOTAL			***0.00***	***0.20***	***0.03***	***0.00***	***0.09***	***0.02***
Onsite		**2020**						
	Fugitive Dust		0.00	0.00	0.00	0.00	0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.07**	**0.01**
Offsite								
	Hauling		0.00	0.20	0.03	0.00	0.01	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.20**	**0.03**	**0.00**	**0.01**	**0.00**
TOTAL			***0.00***	***0.20***	***0.03***	***0.00***	***0.09***	***0.02***

Site Preparation

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020** Summer						
	Fugitive Dust						7.72	4.25
	Off-Road		4.08	42.42	21.51	0.04	2.20	2.02
	Total		**4.08**	**42.42**	**21.51**	**0.04**	**9.92**	**6.27**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.21	0.04	0.00	0.01	0.00
	Worker		0.09	0.05	0.73	0.00	0.19	0.05
	Total		**0.10**	**0.26**	**0.76**	**0.00**	**0.20**	**0.06**
TOTAL			***4.17***	***42.68***	***22.28***	***0.04***	***10.12***	***6.32***
Onsite		**2020** Winter						
	Fugitive Dust						7.72	4.25
	Off-Road		4.08	42.42	21.51	0.04	2.20	2.02
	Total		**4.08**	**42.42**	**21.51**	**0.04**	**9.92**	**6.27**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.20	0.04	0.00	0.01	0.00
	Worker		0.09	0.06	0.59	0.00	0.19	0.05
	Total		**0.10**	**0.26**	**0.63**	**0.00**	**0.20**	**0.06**
TOTAL			***4.17***	***42.68***	***22.14***	***0.04***	***10.12***	***6.32***
Onsite		**2020**						
	Fugitive Dust		0.00	0.00	0.00	0.00	7.72	4.25
	Off-Road		4.08	42.42	21.51	0.04	2.20	2.02
	Total		**4.08**	**42.42**	**21.51**	**0.04**	**9.92**	**6.27**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.21	0.04	0.00	0.01	0.00
	Worker		0.09	0.06	0.73	0.00	0.19	0.05
	Total		**0.10**	**0.26**	**0.76**	**0.00**	**0.20**	**0.06**
TOTAL			***4.17***	***42.68***	***22.28***	***0.04***	***10.12***	***6.32***

Grading

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020** Summer						
	Fugitive Dust						2.80	1.44
	Off-Road		2.43	26.39	16.05	0.03	1.27	1.17
	Total		**2.43**	**26.39**	**16.05**	**0.03**	**4.07**	**2.61**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.21	0.04	0.00	0.01	0.00
	Worker		0.08	0.05	0.60	0.00	0.16	0.04
	Total		**0.08**	**0.25**	**0.64**	**0.00**	**0.17**	**0.05**
TOTAL			***2.51***	***26.64***	***16.70***	***0.03***	***4.24***	***2.66***
Onsite		**2020** Winter						
	Fugitive Dust						2.80	1.44
	Off-Road		2.43	26.39	16.05	0.03	1.27	1.17
	Total		**2.43**	**26.39**	**16.05**	**0.03**	**4.07**	**2.61**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.20	0.04	0.00	0.01	0.00
	Worker		0.07	0.05	0.49	0.00	0.16	0.04
	Total		**0.08**	**0.25**	**0.53**	**0.00**	**0.17**	**0.05**
TOTAL			***2.51***	***26.64***	***16.59***	***0.03***	***4.24***	***2.66***
Onsite		**2020**						
	Fugitive Dust		0.00	0.00	0.00	0.00	2.80	1.44
	Off-Road		2.43	26.39	16.05	0.03	1.27	1.17
	Total		**2.43**	**26.39**	**16.05**	**0.03**	**4.07**	**2.61**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.01	0.21	0.04	0.00	0.01	0.00
	Worker		0.08	0.05	0.60	0.00	0.16	0.04
	Total		**0.08**	**0.25**	**0.64**	**0.00**	**0.17**	**0.05**
TOTAL			***2.51***	***26.64***	***16.70***	***0.03***	***4.24***	***2.66***

Grading Soil Haul

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020** Summer						
	Fugitive Dust						0.02	0.00
	Off-Road		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**
Offsite								
	Hauling		0.43	19.73	2.43	0.06	1.42	0.44
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.43**	**19.73**	**2.43**	**0.06**	**1.42**	**0.44**
TOTAL			***0.43***	***19.73***	***2.43***	***0.06***	***1.44***	***0.44***
Onsite		**2020** Winter						
	Fugitive Dust						0.02	0.00
	Off-Road		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**
Offsite								
	Hauling		0.45	19.90	2.85	0.06	1.42	0.44
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.45**	**19.90**	**2.85**	**0.06**	**1.42**	**0.44**
TOTAL			***0.45***	***19.90***	***2.85***	***0.06***	***1.45***	***0.44***
Onsite		**2020**						
	Fugitive Dust		0.00	0.00	0.00	0.00	0.02	0.00
	Off-Road		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**
Offsite								
	Hauling		0.45	19.90	2.85	0.06	1.42	0.44
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00	0.00	0.00
	Total		**0.45**	**19.90**	**2.85**	**0.06**	**1.42**	**0.44**
TOTAL			***0.45***	***19.90***	***2.85***	***0.06***	***1.45***	***0.44***

Utilities Trenching

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2020 Summer**						
	Off-Road		0.25	2.41	3.27	0.01	0.12	0.11
	Total		**0.25**	**2.41**	**3.27**	**0.01**	**0.12**	**0.11**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.02	0.01	0.12	0.00	0.03	0.01
	Total		**0.02**	**0.01**	**0.12**	**0.00**	**0.03**	**0.01**
TOTAL			***0.26***	***2.42***	***3.39***	***0.01***	***0.15***	***0.12***
Onsite		**2020 Winter**						
	Off-Road		0.25	2.41	3.27	0.01	0.12	0.11
	Total		**0.25**	**2.41**	**3.27**	**0.01**	**0.12**	**0.11**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.02	0.01	0.10	0.00	0.03	0.01
	Total		**0.02**	**0.01**	**0.10**	**0.00**	**0.03**	**0.01**
TOTAL			***0.26***	***2.42***	***3.37***	***0.01***	***0.15***	***0.12***
Onsite		**2020**						
	Off-Road		0.25	2.41	3.27	0.01	0.12	0.11
	Total		**0.25**	**2.41**	**3.27**	**0.01**	**0.12**	**0.11**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.02	0.01	0.12	0.00	0.03	0.01
	Total		**0.02**	**0.01**	**0.12**	**0.00**	**0.03**	**0.01**
TOTAL			***0.26***	***2.42***	***3.39***	***0.01***	***0.15***	***0.12***

Building Construction 2020

		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	**2020 Summer**						
	Off-Road	2.12	19.19	16.85	0.03	1.12	1.05
	Total	**2.12**	**19.19**	**16.85**	**0.03**	**1.12**	**1.05**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.19	6.89	1.26	0.02	0.44	0.15
	Worker	0.88	0.52	6.94	0.02	1.78	0.48
	Total	**1.06**	**7.41**	**8.20**	**0.04**	**2.22**	**0.64**
TOTAL		***3.18***	***26.60***	***25.05***	***0.06***	***3.34***	***1.69***
Onsite	**2020 Winter**						
	Off-Road	2.12	19.19	16.85	0.03	1.12	1.05
	Total	**2.12**	**19.19**	**16.85**	**0.03**	**1.12**	**1.05**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.20	6.86	1.48	0.02	0.44	0.15
	Worker	0.86	0.54	5.61	0.02	1.78	0.48
	Total	**1.05**	**7.39**	**7.09**	**0.03**	**2.23**	**0.64**
TOTAL		***3.17***	***26.58***	***23.94***	***0.06***	***3.34***	***1.69***
Onsite	**2020**						
	Off-Road	2.12	19.19	16.85	0.03	1.12	1.05
	Total	**2.12**	**19.19**	**16.85**	**0.03**	**1.12**	**1.05**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.20	6.89	1.48	0.02	0.44	0.15
	Worker	0.88	0.54	6.94	0.02	1.78	0.48
	Total	**1.06**	**7.41**	**8.20**	**0.04**	**2.23**	**0.64**
TOTAL		***3.18***	***26.60***	***25.05***	***0.06***	***3.34***	***1.69***

Building Construction 2021

		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	**2021** Summer						
	Off-Road	1.90	17.43	16.58	0.03	0.96	0.90
	Total	**1.90**	**17.43**	**16.58**	**0.03**	**0.96**	**0.90**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.16	6.20	1.11	0.02	0.41	0.13
	Worker	0.82	0.46	6.36	0.02	1.78	0.48
	Total	**0.97**	**6.66**	**7.47**	**0.04**	**2.20**	**0.61**
TOTAL		***2.87***	***24.10***	***24.04***	***0.06***	***3.16***	***1.51***
Onsite	**2021** Winter						
	Off-Road	1.90	17.43	16.58	0.03	0.96	0.90
	Total	**1.90**	**17.43**	**16.58**	**0.03**	**0.96**	**0.90**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.17	6.15	1.31	0.02	0.41	0.13
	Worker	0.80	0.48	5.13	0.02	1.78	0.48
	Total	**0.97**	**6.63**	**6.44**	**0.03**	**2.20**	**0.61**
TOTAL		***2.87***	***24.06***	***23.02***	***0.06***	***3.16***	***1.51***
Onsite	**2021**						
	Off-Road	1.90	17.43	16.58	0.03	0.96	0.90
	Total	**1.90**	**17.43**	**16.58**	**0.03**	**0.96**	**0.90**
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.17	6.20	1.31	0.02	0.41	0.13
	Worker	0.82	0.48	6.36	0.02	1.78	0.48
	Total	**0.97**	**6.66**	**7.47**	**0.04**	**2.20**	**0.61**
TOTAL		***2.87***	***24.10***	***24.04***	***0.06***	***3.16***	***1.51***

Paving

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021** Summer						
	Off-Road		1.26	12.92	14.65	0.02	0.68	0.62
	Paving		0.22				0.00	0.00
	Total		**1.48**	**12.92**	**14.65**	**0.02**	**0.68**	**0.62**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.07	0.04	0.55	0.00	0.16	0.04
	Total		**0.07**	**0.04**	**0.55**	**0.00**	**0.16**	**0.04**
TOTAL			***1.55***	***12.96***	***15.21***	***0.02***	***0.83***	***0.67***
Onsite		**2021** Winter						
	Off-Road		1.26	12.92	14.65	0.02	0.68	0.62
	Paving		0.22				0.00	0.00
	Total		**1.48**	**12.92**	**14.65**	**0.02**	**0.68**	**0.62**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.07	0.04	0.45	0.00	0.16	0.04
	Total		**0.07**	**0.04**	**0.45**	**0.00**	**0.16**	**0.04**
TOTAL			***1.55***	***12.96***	***15.10***	***0.02***	***0.83***	***0.67***
Onsite		**2021**						
	Off-Road		1.26	12.92	14.65	0.02	0.68	0.62
	Paving		0.22	0.00	0.00	0.00	0.00	0.00
	Total		**1.48**	**12.92**	**14.65**	**0.02**	**0.68**	**0.62**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.07	0.04	0.55	0.00	0.16	0.04
	Total		**0.07**	**0.04**	**0.55**	**0.00**	**0.16**	**0.04**
TOTAL			***1.55***	***12.96***	***15.21***	***0.02***	***0.83***	***0.67***

Architectural Coating 2021

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2021** Summer						
	Archit. Coating		16.34				0.00	0.00
	Off-Road		0.22	1.53	1.82	0.00	0.09	0.09
	Total		**16.55**	**1.53**	**1.82**	**0.00**	**0.09**	**0.09**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.16	0.09	1.26	0.00	0.35	0.10
	Total		**0.16**	**0.09**	**1.26**	**0.00**	**0.35**	**0.10**
TOTAL			***16.72***	***1.62***	***3.07***	***0.01***	***0.45***	***0.19***
Onsite		**2021** Winter						
	Archit. Coating		16.34				0.00	0.00
	Off-Road		0.22	1.53	1.82	0.00	0.09	0.09
	Total		**16.55**	**1.53**	**1.82**	**0.00**	**0.09**	**0.09**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.16	0.10	1.01	0.00	0.35	0.10
	Total		**0.16**	**0.10**	**1.01**	**0.00**	**0.35**	**0.10**
TOTAL			***16.71***	***1.62***	***2.83***	***0.01***	***0.45***	***0.19***
Onsite		**2021**						
	Archit. Coating		16.34	0.00	0.00	0.00	0.00	0.00
	Off-Road		0.22	1.53	1.82	0.00	0.09	0.09
	Total		**16.55**	**1.53**	**1.82**	**0.00**	**0.09**	**0.09**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.16	0.10	1.26	0.00	0.35	0.10
	Total		**0.16**	**0.10**	**1.26**	**0.00**	**0.35**	**0.10**
TOTAL			***16.72***	***1.62***	***3.07***	***0.01***	***0.45***	***0.19***

Architectural Coating 2022

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2022** Summer						
	Archit. Coating		16.34				0.00	0.00
	Off-Road		0.20	1.41	1.81	0.00	0.08	0.08
	Total		**16.54**	**1.41**	**1.81**	**0.00**	**0.08**	**0.08**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.15	0.08	1.16	0.00	0.35	0.10
	Total		**0.15**	**0.08**	**1.16**	**0.00**	**0.35**	**0.10**
TOTAL			***16.69***	***1.49***	***2.97***	***0.01***	***0.43***	***0.18***
Onsite		**2022** Winter						
	Archit. Coating		16.34				0.00	0.00
	Off-Road		0.20	1.41	1.81	0.00	0.08	0.08
	Total		**16.54**	**1.41**	**1.81**	**0.00**	**0.08**	**0.08**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.15	0.09	0.93	0.00	0.35	0.10
	Total		**0.15**	**0.09**	**0.93**	**0.00**	**0.35**	**0.10**
TOTAL			***16.69***	***1.49***	***2.75***	***0.01***	***0.43***	***0.18***
Onsite		**2022**						
	Archit. Coating		16.34	0.00	0.00	0.00	0.00	0.00
	Off-Road		0.20	1.41	1.81	0.00	0.08	0.08
	Total		**16.54**	**1.41**	**1.81**	**0.00**	**0.08**	**0.08**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.15	0.09	1.16	0.00	0.35	0.10
	Total		**0.15**	**0.09**	**1.16**	**0.00**	**0.35**	**0.10**
TOTAL			***16.69***	***1.49***	***2.97***	***0.01***	***0.43***	***0.18***

Finishing and Landscaping

			ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		**2022** Summer						
	Off-Road		0.20	1.78	3.26	0.01	0.09	0.08
	Total		**0.20**	**1.78**	**3.26**	**0.01**	**0.09**	**0.08**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.01	0.01	0.10	0.00	0.03	0.01
	Total		**0.01**	**0.01**	**0.10**	**0.00**	**0.03**	**0.01**
TOTAL			***0.22***	***1.78***	***3.36***	***0.01***	***0.12***	***0.09***
Onsite		**2022** Winter						
	Off-Road		0.20	1.78	3.26	0.01	0.09	0.08
	Total		**0.20**	**1.78**	**3.26**	**0.01**	**0.09**	**0.08**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.01	0.01	0.08	0.00	0.03	0.01
	Total		**0.01**	**0.01**	**0.08**	**0.00**	**0.03**	**0.01**
TOTAL			***0.22***	***1.78***	***3.34***	***0.01***	***0.12***	***0.09***
Onsite		**2022**						
	Off-Road		0.20	1.78	3.26	0.01	0.09	0.08
	Total		**0.20**	**1.78**	**3.26**	**0.01**	**0.09**	**0.08**
Offsite								
	Hauling		0.00	0.00	0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00	0.00	0.00
	Worker		0.01	0.01	0.10	0.00	0.03	0.01
	Total		**0.01**	**0.01**	**0.10**	**0.00**	**0.03**	**0.01**
TOTAL			***0.22***	***1.78***	***3.36***	***0.01***	***0.12***	***0.09***

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Demolition and Demolition Haul	***3.40***	***33.65***	***22.42***	***0.04***	***1.92***	***1.60***
Site Preparation	***4.17***	***42.68***	***22.28***	***0.04***	***10.12***	***6.32***
Grading and Soil Haul	***2.96***	***46.54***	***19.55***	***0.10***	***5.69***	***3.10***
Utility Trenching	***0.26***	***2.42***	***3.39***	***0.01***	***0.15***	***0.12***
Building Construction 2020	***3.18***	***26.60***	***25.05***	***0.06***	***3.34***	***1.69***
Building Construction 2021	***2.87***	***24.10***	***24.04***	***0.06***	***3.16***	***1.51***
Paving	***1.55***	***12.96***	***15.21***	***0.02***	***0.83***	***0.67***
Architectural Coating 2021	***16.72***	***1.62***	***3.07***	***0.01***	***0.45***	***0.19***
Architectural Coating 2022	***16.69***	***1.49***	***2.97***	***0.01***	***0.43***	***0.18***
Finishing and Landscaping	***0.22***	***1.78***	***3.36***	***0.01***	***0.12***	***0.09***
MAX DAILY	**16.72**	**46.54**	**25.05**	**0.10**	**10.12**	**6.32**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

Construction LSTs Worksheet:

Demolition

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Off-Road		33.20	21.75	1.66	1.54
	Total		**33.20**	**21.75**	**1.66**	**1.54**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***33.20***	***21.75***	***1.66***	***1.54***
Onsite		**2020**				
	Off-Road		33.20	21.75	1.66	1.54
	Total		**33.20**	**21.75**	**1.66**	**1.54**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***33.20***	***21.75***	***1.66***	***1.54***
Onsite		**2020**				
	Off-Road		33.20	21.75	1.66	1.54
	Total		**33.20**	**21.75**	**1.66**	**1.54**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***33.20***	***21.75***	***1.66***	***1.54***

Demolition Haul

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Fugitive Dust				0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.07**	**0.01**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***0.00***	***0.00***	***0.07***	***0.01***
Onsite		**2020**				
	Fugitive Dust				0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.07**	**0.01**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***0.00***	***0.00***	***0.07***	***0.01***
Onsite		**2020**				
	Fugitive Dust		0.00	0.00	0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.07**	**0.01**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***0.00***	***0.00***	***0.07***	***0.01***

Site Preparation

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Fugitive Dust				7.72	4.25
	Off-Road		42.42	21.51	2.20	2.02
	Total		**42.42**	**21.51**	**9.92**	**6.27**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***42.42***	***21.51***	***9.92***	***6.27***
Onsite		**2020**				
	Fugitive Dust				7.72	4.25
	Off-Road		42.42	21.51	2.20	2.02
	Total		**42.42**	**21.51**	**9.92**	**6.27**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***42.42***	***21.51***	***9.92***	***6.27***
Onsite		**2020**				
	Fugitive Dust		0.00	0.00	7.72	4.25
	Off-Road		42.42	21.51	2.20	2.02
	Total		**42.42**	**21.51**	**9.92**	**6.27**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***42.42***	***21.51***	***9.92***	***6.27***

Grading

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Fugitive Dust				2.80	1.44
	Off-Road		26.39	16.05	1.27	1.17
	Total		**26.39**	**16.05**	**4.07**	**2.61**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***26.39***	***16.05***	***4.07***	***2.61***
Onsite		**2020**				
	Fugitive Dust				2.80	1.44
	Off-Road		26.39	16.05	1.27	1.17
	Total		**26.39**	**16.05**	**4.07**	**2.61**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***26.39***	***16.05***	***4.07***	***2.61***
Onsite		**2020**				
	Fugitive Dust		0.00	0.00	2.80	1.44
	Off-Road		26.39	16.05	1.27	1.17
	Total		**26.39**	**16.05**	**4.07**	**2.61**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***26.39***	***16.05***	***4.07***	***2.61***

Grading Soil Haul					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2020**				
Fugitive Dust				0.02	0.00
Off-Road		0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.02**	**0.00**
Offsite					
Hauling					
Vendor					
Worker					
Total					
TOTAL		***0.00***	***0.00***	***0.02***	***0.00***
Onsite	**2020**				
Fugitive Dust				0.02	0.00
Off-Road		0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.02**	**0.00**
Offsite					
Hauling					
Vendor					
Worker					
Total					
TOTAL		***0.00***	***0.00***	***0.02***	***0.00***
Onsite	**2020**				
Fugitive Dust		0.00	0.00	0.02	0.00
Off-Road		0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.02**	**0.00**
Offsite					
Hauling		0.00	0.00	0.00	0.00
Vendor		0.00	0.00	0.00	0.00
Worker		0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***0.00***	***0.00***	***0.02***	***0.00***

Utilities Trenching					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2020**				
Off-Road		2.41	3.27	0.12	0.11
Total		**2.41**	**3.27**	**0.12**	**0.11**
Offsite					
Hauling					
Vendor					
Worker					
Total					
TOTAL		***2.41***	***3.27***	***0.12***	***0.11***
Onsite	**2020**				
Off-Road		2.41	3.27	0.12	0.11
Total		**2.41**	**3.27**	**0.12**	**0.11**
Offsite					
Hauling					
Vendor					
Worker					
Total					
TOTAL		***2.41***	***3.27***	***0.12***	***0.11***
Onsite	**2020**				
Off-Road		2.41	3.27	0.12	0.11
Total		**2.41**	**3.27**	**0.12**	**0.11**
Offsite					
Hauling		0.00	0.00	0.00	0.00
Vendor		0.00	0.00	0.00	0.00
Worker		0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***2.41***	***3.27***	***0.12***	***0.11***

Building Construction 2020						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Off-Road		19.19	16.85	1.12	1.05
	Total		**19.19**	**16.85**	**1.12**	**1.05**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***19.19***	***16.85***	***1.12***	***1.05***
Onsite		**2020**				
	Off-Road		19.19	16.85	1.12	1.05
	Total		**19.19**	**16.85**	**1.12**	**1.05**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***19.19***	***16.85***	***1.12***	***1.05***
Onsite		**2020**				
	Off-Road		19.19	16.85	1.12	1.05
	Total		**19.19**	**16.85**	**1.12**	**1.05**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***19.19***	***16.85***	***1.12***	***1.05***

Building Construction 2021						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		17.43	16.58	0.96	0.90
	Total		**17.43**	**16.58**	**0.96**	**0.90**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***17.43***	***16.58***	***0.96***	***0.90***
Onsite		**2021**				
	Off-Road		17.43	16.58	0.96	0.90
	Total		**17.43**	**16.58**	**0.96**	**0.90**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***17.43***	***16.58***	***0.96***	***0.90***
Onsite		**2021**				
	Off-Road		17.43	16.58	0.96	0.90
	Total		**17.43**	**16.58**	**0.96**	**0.90**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***17.43***	***16.58***	***0.96***	***0.90***

Paving

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		12.92	14.65	0.68	0.62
	Paving				0.00	0.00
	Total		**12.92**	**14.65**	**0.68**	**0.62**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***12.92***	***14.65***	***0.68***	***0.62***
Onsite		**2021**				
	Off-Road		12.92	14.65	0.68	0.62
	Paving				0.00	0.00
	Total		**12.92**	**14.65**	**0.68**	**0.62**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***12.92***	***14.65***	***0.68***	***0.62***
Onsite		**2021**				
	Off-Road		12.92	14.65	0.68	0.62
	Paving		0.00	0.00	0.00	0.00
	Total		**12.92**	**14.65**	**0.68**	**0.62**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***12.92***	***14.65***	***0.68***	***0.62***

Architectural Coating 2021

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Archit. Coating				0.00	0.00
	Off-Road		1.53	1.82	0.09	0.09
	Total		**1.53**	**1.82**	**0.09**	**0.09**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.53***	***1.82***	***0.09***	***0.09***
Onsite		**2021**				
	Archit. Coating				0.00	0.00
	Off-Road		1.53	1.82	0.09	0.09
	Total		**1.53**	**1.82**	**0.09**	**0.09**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.53***	***1.82***	***0.09***	***0.09***
Onsite		**2021**				
	Archit. Coating		0.00	0.00	0.00	0.00
	Off-Road		1.53	1.82	0.09	0.09
	Total		**1.53**	**1.82**	**0.09**	**0.09**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***1.53***	***1.82***	***0.09***	***0.09***

Architectural Coating 2022

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2022**				
	Archit. Coating				0.00	0.00
	Off-Road		1.41	1.81	0.08	0.08
	Total		**1.41**	**1.81**	**0.08**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.41***	***1.81***	***0.08***	***0.08***
Onsite		**2022**				
	Archit. Coating				0.00	0.00
	Off-Road		1.41	1.81	0.08	0.08
	Total		**1.41**	**1.81**	**0.08**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.41***	***1.81***	***0.08***	***0.08***
Onsite		**2022**				
	Archit. Coating		0.00	0.00	0.00	0.00
	Off-Road		1.41	1.81	0.08	0.08
	Total		**1.41**	**1.81**	**0.08**	**0.08**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***1.41***	***1.81***	***0.08***	***0.08***

Finishing and Landscaping

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		1.78	3.26	0.09	0.08
	Total		**1.78**	**3.26**	**0.09**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.78***	***3.26***	***0.09***	***0.08***
Onsite		**2021**				
	Off-Road		1.78	3.26	0.09	0.08
	Total		**1.78**	**3.26**	**0.09**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.78***	***3.26***	***0.09***	***0.08***
Onsite		**2021**				
	Off-Road		1.78	3.26	0.09	0.08
	Total		**1.78**	**3.26**	**0.09**	**0.08**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***1.78***	***3.26***	***0.09***	***0.08***

		NOx	CO	PM10 Total	PM2.5 Total
Demolition and Demolition Haul		*33.20*	*21.75*	*1.73*	*1.55*
	1.00 Acre LST	*118*	*602*	*4*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Site Preparation		*42.42*	*21.51*	*9.92*	*6.27*
	3.50 Acre LST	*220*	*1,230*	*9.99*	*6.00*
	Exceeds LST?	*no*	*no*	*no*	*yes*
Grading and Soil Haul		*26.39*	*16.05*	*4.10*	*2.61*
	2.50 Acre LST	*187*	*999*	*8*	*5*
	Exceeds LST?	*no*	*no*	*no*	*no*
Utility Trenching		*2.41*	*3.27*	*0.12*	*0.11*
	0.00 Acre LST	*118*	*602*	*4*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Building Construction 2020		*19.19*	*16.85*	*1.12*	*1.05*
	1.50 Acre LST	*134*	*690*	*5*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Building Construction 2021		*17.43*	*16.58*	*0.96*	*0.90*
	1.50 Acre LST	*134*	*690*	*5*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Paving		*12.92*	*14.65*	*0.68*	*0.62*
	0.00 Acre LST	*118*	*602*	*4*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Architectural Coating 2021		*1.53*	*1.82*	*0.09*	*0.09*
	0.00 Acre LST	*118*	*602*	*4*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Architectural Coating 2022		*1.41*	*1.81*	*0.08*	*0.08*
	0.00 Acre LST	*118*	*602*	*4*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*
Finishing and Landscaping		*1.78*	*3.26*	*0.09*	*0.08*
	0.00 Acre LST	*118*	*602*	*4*	*3*
	Exceeds LST?	*no*	*no*	*no*	*no*

Mitigated Construction LSTs Worksheet:

Demolition

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Off-Road		33.20	21.75	1.66	1.54
	Total		**33.20**	**21.75**	**1.66**	**1.54**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***33.20***	***21.75***	***1.66***	***1.54***
Onsite		**2020**				
	Off-Road		33.20	21.75	1.66	1.54
	Total		**33.20**	**21.75**	**1.66**	**1.54**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***33.20***	***21.75***	***1.66***	***1.54***
Onsite		**2020**				
	Off-Road		33.20	21.75	1.66	1.54
	Total		**33.20**	**21.75**	**1.66**	**1.54**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***33.20***	***21.75***	***1.66***	***1.54***

Demolition Haul

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Fugitive Dust				0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.07**	**0.01**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***0.00***	***0.00***	***0.07***	***0.01***
Onsite		**2020**				
	Fugitive Dust				0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.07**	**0.01**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***0.00***	***0.00***	***0.07***	***0.01***
Onsite		**2020**				
	Fugitive Dust		0.00	0.00	0.07	0.01
	Off-Road		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.07**	**0.01**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***0.00***	***0.00***	***0.07***	***0.01***

Site Preparation

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Fugitive Dust				6.69	3.68
	Off-Road		42.42	21.51	2.20	2.02
	Total		**42.42**	**21.51**	**8.89**	**5.70**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***42.42***	***21.51***	***8.89***	***5.70***
Onsite		**2020**				
	Fugitive Dust				6.69	3.68
	Off-Road		42.42	21.51	2.20	2.02
	Total		**42.42**	**21.51**	**8.89**	**5.70**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***42.42***	***21.51***	***8.89***	***5.70***
Onsite		**2020**				
	Fugitive Dust		0.00	0.00	6.69	3.68
	Off-Road		42.42	21.51	2.20	2.02
	Total		**42.42**	**21.51**	**8.89**	**5.70**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***42.42***	***21.51***	***8.89***	***5.70***

Grading

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Fugitive Dust				2.80	1.44
	Off-Road		26.39	16.05	1.27	1.17
	Total		**26.39**	**16.05**	**4.07**	**2.61**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***26.39***	***16.05***	***4.07***	***2.61***
Onsite		**2020**				
	Fugitive Dust				2.80	1.44
	Off-Road		26.39	16.05	1.27	1.17
	Total		**26.39**	**16.05**	**4.07**	**2.61**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***26.39***	***16.05***	***4.07***	***2.61***
Onsite		**2020**				
	Fugitive Dust		0.00	0.00	2.80	1.44
	Off-Road		26.39	16.05	1.27	1.17
	Total		**26.39**	**16.05**	**4.07**	**2.61**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***26.39***	***16.05***	***4.07***	***2.61***

Grading Soil Haul					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2020**				
	Fugitive Dust			0.02	0.00
	Off-Road	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.02**	**0.00**
Offsite					
	Hauling				
	Vendor				
	Worker				
	Total				
TOTAL		***0.00***	***0.00***	***0.02***	***0.00***
Onsite	**2020**				
	Fugitive Dust			0.02	0.00
	Off-Road	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.02**	**0.00**
Offsite					
	Hauling				
	Vendor				
	Worker				
	Total				
TOTAL		***0.00***	***0.00***	***0.02***	***0.00***
Onsite	**2020**				
	Fugitive Dust	0.00	0.00	0.02	0.00
	Off-Road	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.02**	**0.00**
Offsite					
	Hauling	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00
	Worker	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***0.00***	***0.00***	***0.02***	***0.00***

Utilities Trenching					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	**2020**				
	Off-Road	2.41	3.27	0.12	0.11
	Total	**2.41**	**3.27**	**0.12**	**0.11**
Offsite					
	Hauling				
	Vendor				
	Worker				
	Total				
TOTAL		***2.41***	***3.27***	***0.12***	***0.11***
Onsite	**2020**				
	Off-Road	2.41	3.27	0.12	0.11
	Total	**2.41**	**3.27**	**0.12**	**0.11**
Offsite					
	Hauling				
	Vendor				
	Worker				
	Total				
TOTAL		***2.41***	***3.27***	***0.12***	***0.11***
Onsite	**2020**				
	Off-Road	2.41	3.27	0.12	0.11
	Total	**2.41**	**3.27**	**0.12**	**0.11**
Offsite					
	Hauling	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00
	Worker	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL		***2.41***	***3.27***	***0.12***	***0.11***

Building Construction 2020						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2020**				
	Off-Road		19.19	16.85	1.12	1.05
	Total		**19.19**	**16.85**	**1.12**	**1.05**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***19.19***	***16.85***	***1.12***	***1.05***
Onsite		**2020**				
	Off-Road		19.19	16.85	1.12	1.05
	Total		**19.19**	**16.85**	**1.12**	**1.05**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***19.19***	***16.85***	***1.12***	***1.05***
Onsite		**2020**				
	Off-Road		19.19	16.85	1.12	1.05
	Total		**19.19**	**16.85**	**1.12**	**1.05**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***19.19***	***16.85***	***1.12***	***1.05***

Building Construction 2021						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		17.43	16.58	0.96	0.90
	Total		**17.43**	**16.58**	**0.96**	**0.90**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***17.43***	***16.58***	***0.96***	***0.90***
Onsite		**2021**				
	Off-Road		17.43	16.58	0.96	0.90
	Total		**17.43**	**16.58**	**0.96**	**0.90**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***17.43***	***16.58***	***0.96***	***0.90***
Onsite		**2021**				
	Off-Road		17.43	16.58	0.96	0.90
	Total		**17.43**	**16.58**	**0.96**	**0.90**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***17.43***	***16.58***	***0.96***	***0.90***

Paving

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		12.92	14.65	0.68	0.62
	Paving				0.00	0.00
	Total		**12.92**	**14.65**	**0.68**	**0.62**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***12.92***	***14.65***	***0.68***	***0.62***
Onsite		**2021**				
	Off-Road		12.92	14.65	0.68	0.62
	Paving				0.00	0.00
	Total		**12.92**	**14.65**	**0.68**	**0.62**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***12.92***	***14.65***	***0.68***	***0.62***
Onsite		**2021**				
	Off-Road		12.92	14.65	0.68	0.62
	Paving		0.00	0.00	0.00	0.00
	Total		**12.92**	**14.65**	**0.68**	**0.62**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***12.92***	***14.65***	***0.68***	***0.62***

Architectural Coating 2021

			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Archit. Coating				0.00	0.00
	Off-Road		1.53	1.82	0.09	0.09
	Total		**1.53**	**1.82**	**0.09**	**0.09**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.53***	***1.82***	***0.09***	***0.09***
Onsite		**2021**				
	Archit. Coating				0.00	0.00
	Off-Road		1.53	1.82	0.09	0.09
	Total		**1.53**	**1.82**	**0.09**	**0.09**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.53***	***1.82***	***0.09***	***0.09***
Onsite		**2021**				
	Archit. Coating		0.00	0.00	0.00	0.00
	Off-Road		1.53	1.82	0.09	0.09
	Total		**1.53**	**1.82**	**0.09**	**0.09**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***1.53***	***1.82***	***0.09***	***0.09***

Architectural Coating 2022						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2022**				
	Archit. Coating				0.00	0.00
	Off-Road		1.41	1.81	0.08	0.08
	Total		**1.41**	**1.81**	**0.08**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.41***	***1.81***	***0.08***	***0.08***
Onsite		**2022**				
	Archit. Coating				0.00	0.00
	Off-Road		1.41	1.81	0.08	0.08
	Total		**1.41**	**1.81**	**0.08**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.41***	***1.81***	***0.08***	***0.08***
Onsite		**2022**				
	Archit. Coating		0.00	0.00	0.00	0.00
	Off-Road		1.41	1.81	0.08	0.08
	Total		**1.41**	**1.81**	**0.08**	**0.08**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***1.41***	***1.81***	***0.08***	***0.08***

Finishing and Landscaping						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		**2021**				
	Off-Road		1.78	3.26	0.09	0.08
	Total		**1.78**	**3.26**	**0.09**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.78***	***3.26***	***0.09***	***0.08***
Onsite		**2021**				
	Off-Road		1.78	3.26	0.09	0.08
	Total		**1.78**	**3.26**	**0.09**	**0.08**
Offsite						
	Hauling					
	Vendor					
	Worker					
	Total					
TOTAL			***1.78***	***3.26***	***0.09***	***0.08***
Onsite		**2021**				
	Off-Road		1.78	3.26	0.09	0.08
	Total		**1.78**	**3.26**	**0.09**	**0.08**
Offsite						
	Hauling		0.00	0.00	0.00	0.00
	Vendor		0.00	0.00	0.00	0.00
	Worker		0.00	0.00	0.00	0.00
	Total		**0.00**	**0.00**	**0.00**	**0.00**
TOTAL			***1.78***	***3.26***	***0.09***	***0.08***

		NOx	CO	PM10 Total	PM2.5 Total
Demolition and Demolition Haul		*33.20*	*21.75*	*1.73*	*1.55*
	1.00 Acre LST	*118*	*602*	*4.00*	*3.00*
	Exceeds LST?	*no*	*no*	*no*	*no*
Site Preparation		*42.42*	*21.51*	*8.89*	*5.70*
	3.50 Acre LST	*220*	*1,230*	*9.99*	*6.00*
	Exceeds LST?	*no*	*no*	*no*	*no*
Grading and Soil Haul		*26.39*	*16.05*	*4.10*	*2.61*
	2.50 Acre LST	*187*	*999*	*8.00*	*4.67*
	Exceeds LST?	*no*	*no*	*no*	*no*
Utility Trenching		*2.41*	*3.27*	*0.12*	*0.11*
	0.00 Acre LST	*118*	*602*	*4.00*	*3.00*
	Exceeds LST?	*no*	*no*	*no*	*no*
Building Construction 2020		*19.19*	*16.85*	*1.12*	*1.05*
	1.50 Acre LST	*134*	*690*	*4.94*	*3.31*
	Exceeds LST?	*no*	*no*	*no*	*no*
Building Construction 2021		*17.43*	*16.58*	*0.96*	*0.90*
	1.50 Acre LST	*134*	*690*	*4.94*	*3.31*
	Exceeds LST?	*no*	*no*	*no*	*no*
Paving		*12.92*	*14.65*	*0.68*	*0.62*
	0.00 Acre LST	*118*	*602*	*4.00*	*3.00*
	Exceeds LST?	*no*	*no*	*no*	*no*
Architectural Coating 2021		*1.53*	*1.82*	*0.09*	*0.09*
	0.00 Acre LST	*118*	*602*	*4.00*	*3.00*
	Exceeds LST?	*no*	*no*	*no*	*no*
Architectural Coating 2022		*1.41*	*1.81*	*0.08*	*0.08*
	0.00 Acre LST	*118*	*602*	*4.00*	*3.00*
	Exceeds LST?	*no*	*no*	*no*	*no*
Finishing and Landscaping		*1.78*	*3.26*	*0.09*	*0.08*
	0.00 Acre LST	*118*	*602*	*4.00*	*3.00*
	Exceeds LST?	*no*	*no*	*no*	*no*

Regional Operation Emissions Worksheet: Buildout Year 2022[1]

[1] CalEEMod, Version 2016.3.2.25

Proposed Operations

Summer

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	1.96	0.00	0.08	0.00	0.00	0.00
Energy	0.02	0.15	0.12	0.00	0.01	0.01
Mobile	2.16	1.51	21.13	0.05	6.39	1.72
Total	**4.14**	**1.66**	**21.33**	**0.06**	**6.40**	**1.73**

Winter

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	1.96	0.00	0.08	0.00	0.00	0.00
Energy	0.02	0.15	0.12	0.00	0.01	0.01
Mobile	2.06	1.91	18.80	0.05	6.39	1.72
Total	**4.04**	**2.05**	**19.00**	**0.05**	**6.40**	**1.73**

Max Daily

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	1.96	0.00	0.08	0.00	0.00	0.00
Energy	0.02	0.15	0.12	0.00	0.01	0.01
Mobile	2.16	1.91	21.13	0.05	6.39	1.72
Total	**4.14**	**2.05**	**21.33**	**0.06**	**6.40**	**1.73**

Regional Thresholds (lb/day)	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	No	No	No	No	No

GHG Emissions Inventory

Proposed Project Buildout

Construction

	$MTCO_2e$ Total Project*
2020	283
2021	655
2022	7
Total Construction	**944**

*CalEEMod, Version 2016.3.2.25

Operation*

Proposed Project		
Area	0	$MTCO_2e$/Year**
Energy	155	$MTCO_2e$/Year
Mobile	634	$MTCO_2e$/Year
Solid Waste	0	$MTCO_2e$/Year
Water	0	$MTCO_2e$/Year
Amortized Construction Emissions***	31	$MTCO_2e$/Year
Total	**820**	**$MTCO_2e$/Year**
Net Emissions	**820**	
SCAQMD Bright-Line Screening Threshold	3,000	$MTCO_2e$/Year
Exceed Threshold?	**No**	

*CalEEMod, Version 2016.3.2.25

** $MTCO_2e$=metric tons of carbon dioxide equivalent.

*** Total construction emissions are amortized over 30 years per SCAQMD methodology; SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2.

CalEEMod Inputs - Moreno Valley Elementary School Replacement Project, Construction

Name:	Moreno Valley Elmentary School Replacement
Project Number:	MORE-36
Project Location:	13636 Nason Street Moreno Valley, CA 92555
County/Air Basin:	Riverside
Climate Zone:	10
Land Use Setting:	Urban
Operational Year:	2021
Utility Company:	Moreno Valley Electric Utility
Air Basin:	South Coast Air Basin
Air District:	SCAQMD
SRA:	24 - Perris Valley

Proiect Site Acreage	8.97
Disturbed Site Acreage	8.97

Project Components	SQFT	Acres	Tons
Demolition			
Existing Residence	3,000		138.00
Existing Asphalt Demo	3,700		54.81
New Construction			**Building Footprint (sqft)**
School Building	77,000	1.34	58,177.78
Portable Buildings	5,000	0.11	
Total Building	82,000		
Staff Parking Lot	30,100	0.69	
Visitor Parking Lot	13,000	0.30	
Other Asphalt Surfaces	45,000	1.03	
Other Non-Asphalt Surfaces	239,455	5.50	

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage*	Land Use Square Feet
Educational	Elementary School	82.000	1000 sqft	1.45	82,000
Parking	Parking Lot	43.100	1000 sqft	0.99	43,100
Parking	Other Asphalt Surfaces	45.000	1000 sqft	1.03	45,000
Parking	Other Non-asphalt Surfaces	239.455	1000 sqft	5.50	239,455
				8.97	

* while lot acreage for CalEEMod inputs exceeds disturbed site acreage, only construction equipment mix provided by applicant would affect emissions outputs

Demolition

Component	Amount to be Demolished (Tons)	Haul Truck Capacity (tons)1	Haul Distance (miles)	Total Trip Ends	Duration (days)
Total Building Demo	138	20	20	14	24
Total Asphalt Demo	55	20	20	6	24
Total	193			20	

Soil Haul [1]

Construction Activities	Haul Truck Capacity (cy)	Import Volume (CY)	No. of total one-way import haul (trip ends)	No. of total one-way haul (trip ends/day)	Export Volume (CY)	No. of total one-way export haul (trip ends)	No. of total one-way haul (trip ends/day)	Total Days
Rough Grading Soil Haul	10	10,000	2000	84	0	0	0	24

Architectural Coating (Life Sciences)

Percentage of Proposed Buildings' Interior Painted:	100%
Percentage of Proposed Buildings' Exterior Painted:	100%

Rule 1113

Interior Paint VOC content:	50	grams per liter
Exterior Paint VOC content:	50	grams per liter

Residential Structures	Land Use Square Feet	CalEEMod Factor[2]	Total Paintable Surface Area	Paintable Interior Area[1]	Paintable Exterior Area[1]
Elementary School	82,000	2.0	164,000	123,000	41,000
			164,000	123,000	41,000
Parking Lot	43,100	6%	2,586		2,586
			2,586		2,586

[1] CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively.
[2] The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.
[3] 100% of the interior and exterior of buildings to be modernized will be painted

Utilities Information

Based on correspondance with the Moreno Valley Electric Utility, energy is partially sourced from Exelon, which reports CO2 intensity at 107 in 2017.
The model assumes SCE carbon intensity as a proxy for the most conservative results

CO2:[1,2]	504.43634	pounds per megawatt hour
CH4:[3]	0.029	pound per megawatt hour
N2O:[3]	0.00617	pound per megawatt hour

[1] Based on CO_2e intensity factor of 507 pounds per megawatt hour; Southern California Edison. 2019, May. 2018 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2018-sustainability-report.pdf.
[2] Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007.
[3] CalEEMod default values.

Construction Mitigation

SCAQMD Rule 403			
Replace Ground Cover	PM10:	5	% Reduction
Replace Ground Cover	PM2.5:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph
SCAQMD Rule 1186	Clean Paved Road	9	% PM Reduction

Construction Activities and Schedule Assumptions: Moreno Valley Elmentary School Replacement

*based on CalEEMod default construction durations, normalized over duration provided by applicant

Q3 2020 til Q1 2022

		Construction Schedule		
Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	8/1/2020	8/28/2020	20
Demolition Haul	Demolition	8/1/2020	8/28/2020	20
Site Preparation	Site Preparation	8/29/2020	9/11/2020	10
Grading	Grading	9/12/2020	10/9/2020	20
Grading Haul	Grading	9/12/2020	10/9/2020	20
Utilities	Trenching	10/10/2020	10/25/2020	10
Building Construction	Building Construction	10/26/2020	9/10/2021	230
Paving	Paving	9/11/2021	10/8/2021	20
Architectural Coating	Architectural Coating	10/9/2021	11/5/2021	20
Finishing and Landscaping	Trenching	11/5/2021	11/18/2021	10

CalEEMod Inputs*

Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	8/1/2020	9/3/2020	24
Demolition Haul	Demolition	8/1/2020	9/3/2020	24
Site Preparation	Site Preparation	9/4/2020	9/21/2020	12
Grading	Grading	9/22/2020	10/24/2020	24
Grading Haul	Grading	9/22/2020	10/24/2020	24
Utilities	Trenching	10/25/2020	11/8/2020	10
Building Construction	Building Construction	11/9/2020	11/16/2021	267
Paving	Paving	11/17/2021	12/20/2021	24
Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	24
Finishing and Landscaping	Trenching	1/24/2022	2/6/2022	10

CalEEMod Construction Off-Road Equipment Inputs

**Based on CalEEMod defaults, assumed equipment would not be shared for most conservative results*

General Construction Hours: 8 hours btwn 7:00 AM to 4:00 PM (with 1 hr break), Mon-Fri

Construction Equipment Details							
Equipment	**model**	**# of Equipment**	**hr/day**	**hp**	**load factor***	**Tier Rating**	**total trips**
Demolition							
Concrete/Industrial Saws		1	8	81	0.73		
Excavators		3	8	158	0.38		
Rubber Tired Dozers		2	8	247	0.4		
Worker Trips							15
Vendor Trips							0
Hauling Trips							0
Water Trucks							2
Demolition Debris Haul							
no additional equipment required for Demo Haul							
Worker Trips							0
Vendor Trips							0
Hauling Trips							20
Site Preparation							
Rubber Tired Dozers		3	8	247	0.4		
Tractors/Loaders/Backhoes		4	8	97	0.37		
Worker Trips							18
Vendor Trips							0
Hauling Trips							0
Water Trucks							2
Rough Grading							
Excavators		1	8	158	0.38		
Graders		1	8	187	0.41		
Rubber Tired Dozers		1	8	247	0.4		
Tractors/Loaders/Backhoes		3	8	97	0.37		
Worker Trips							15
Vendor Trips							0
Hauling Trips							0
Water Trucks							2
Rough Grading Soil Haul							
no additional equipment required for Grading Soil Haul							
Worker Trips							0
Vendor Trips							0
Hauling Trips							2,000
Utilities Trenching							
Excavators		1	8	158	0.3819		
Worker Trips							3
Vendor Trips							0
Hauling Trips							0
Building Construction							
Cranes		1	7	231	0.29		
Forklifts		3	8	89	0.2		
Generator Sets		1	8	84	0.74		
Tractors/Loaders/Backhoes		3	7	97	0.37		
Welders		1	8	46	0.45		
Worker Trips							172
Vendor Trips							67
Hauling Trips							0
Paving							
Pavers		2	8	130	0.42		
Paving Equipment		2	8	132	0.36		
Rollers		2	8	80	0.38		
Worker Trips							15
Vendor Trips							0
Hauling Trips							0
Architectural Coating (surface lots, etc...)							
Air Compressors		1	6	78	0.48		
Worker Trips							34
Vendor Trips							0
Hauling Trips							0
Finishing/Landscaping							
Excavators		1	8	158	0.3819		
Worker Trips							3
Vendor Trips							0
Hauling Trips							0

Construction Trips Worksheet

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Trip Ends Per Day	Start Date	End Date	Workdays
Demolition and Demolition Haul	15	2	1	18	8/1/2020	9/3/2020	24
Site Preparation	18	2	0	20	9/4/2020	9/21/2020	12
Grading and Grading Haul	15	2	84	101	9/22/2020	10/24/2020	24
Utilities Trenching	3	0	0	3	10/25/2020	11/8/2020	10
Building Construction	172	67	0	239	11/9/2020	11/16/2021	267
Paving	15	0	0	15	11/17/2021	12/20/2021	24
Architectural Coating	34	0	0	34	12/21/2021	1/23/2022	24
Finishing and Landscaping	3	0	0	3	1/24/2022	2/6/2022	10
Maximum Daily Trips	**172**	**67**	**84**	**239**			

CalEEMod Inputs - Moreno Valley Elementary School Replacement Project, Construction

Name:	Moreno Valley Elmentary School Replacement
Project Number:	MORE-36
Project Location:	13636 Nason Street Moreno Valley, CA 92555
County/Air Basin:	Riverside
Climate Zone:	10
Land Use Setting:	Urban
Operational Year:	2022
Utility Company:	Moreno Valley Electric Utility
Air Basin:	South Coast Air Basin
Air District:	SCAQMD
SRA:	24 - Perris Valley

Project Site Acreage	8.97
Disturbed Site Acreage	8.97

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Educational	Elementary School	467.00	students	1.45	82,000
Parking	Parking Lot	43.10	1000 sqft	0.99	43,100
Parking	Other Asphalt Surfaces	45.00	1000 sqft	1.03	45,000
Parking	Other Non-asphalt Surfaces	239.46	1000 sqft	5.50	239,455
				8.97	

* while lot acreage for CalEEMod inputs exceeds disturbed site acreage, only construction equipment mix provided by applicant would affect emissions outputs

Land Use Type	Average Daily Trips[1]	CalEEMod Trip Rate	Saturday Trips	CalEEMod Trip Rate[2]	Sunday Trips	CalEEMod Trip Rate[2]
Elementary School	883	**1.89**	0	**0.00**	0	**0.00**

Source: [1]EPD Solutions. 2020. Transportation Analysis for Proposed Moreno Elementary School Replacement

[2] Assumes no weekend trips

Energy Use

* CalEEMod defaults

Water Use

modeling assumes that students are already using water on other campuses before transferring to proposed elementary school

assumes 100% aerobic treatment for any water use by proposed project

Solid Waste CalEEMod Defaults*

modeling assumes that students are already generating solid waste on other campuses before transferring to proposed elementary school

Architectural Coating

* See Architectural Coating for Construction Model

Electricity (Buildings)

Project Energy

Modeling is conservative because the carbon intensity of electricity does not account for additional reductions from the 33% RPS and 50% RPS under SB 350.

Buildings constructed after January 1, 2020 are required to meet the 2019 Building and Energy Efficiency Standards. The 2019 Standards are 30% more energy efficient for non-residential buildings and 7% more energy efficient for single family residential buildings than the 2016 Building and Energy Efficiency Standards.

Non-Residential Exceed Title 24	**30%**	Improvement over 2016

Sources:

[1] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. Accessed on April 3, 2019. http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

Changes to the CalEEMod Defaults - Fleet Mix 2022

Average Daily Trips: 467

Default	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMix	0.545527	0.036856	0.186032	0.115338	0.015222	0.00497	0.017525	0.069528	0.001397	0.00116	0.004547	0.000932	0.000965	100%
Trips	255	17	87	54	7	2	8	32	1	1	2	0	0	467
Percent	0.77			0.12		0.11								
Proportion	0.705762	0.047682	0.240674	1.000000	0.136277	0.044495	0.156895	0.622459	0.012507	0.010385	0.005883	0.008344	0.008639	
Assumed Mix	0.97			0.02		0.01						100%		
adjusted with														
Assumed	0.684589	0.046251	0.233454	0.020000	0.001363	0.000445	0.001569	0.006225	0.000125	0.000104	0.005706	0.000083	0.000086	100%
Trips	320	22	109	9	1	0	1	3	0	0	3	0	0	467
Calibrated for zero heavy-duty trucks	0.684589	0.046251	0.233454	0.020000	0.001363	0.000445	0.001569	0.006225	0	0	0.005706	0.000083	0.000086	100.0%
Modified	**0.684746**	**0.046262**	**0.233507**	**0.020005**	**0.001363**	**0.000445**	**0.001569**	**0.006226**	**0**	**0**	**0.005707**	**0.000083**	0.000086	**100.0%**
Trips	320	22	109	9	**1**	**0**	**1**	**3**	**0**	**0**	3	0	**0**	467
Assumed Mix	97%			2%		1%								100%

Fleet mix for the project is modified to reflect a higher proportion of passenger vehicles that the regional VMT. Assumes a mix of approximately 98% passenger vehicles, 2% medium duty trucks, and 0% heavy duty trucks and buses.

Demo Haul Trip Calculation

*Conversion factors**

0.046	ton/SF
1.2641662	tons/cy
20	tons
15.82070459	CY
0.791035229	CY/ton

Building	BSF Demo	Tons/SF	Tons	Haul Truck (CY)	Haul Truck (Ton)	Round Trips	Total Trip Ends
Combined Building Demo	3,000	0.046	138	16	20.00	7	14

*CalEEMod User's Guide Version 2016.3.2, Appendix A

Pavement Volume to Weight Conversion

Component	Total SF of Area[1]	Assumed Thickness (foot)[2]	Debris Volume (cu. ft)	Weight of Crushed Asphalt (lbs/cf)[3]	AC Mass (lbs)	AC Mass (tons)
Asphalt Demolition	3,700	0.333	1,233	89	109,630	54.81
Total	3,700					54.81

[1] Based on aerial image of existing project site.

[2] Pavements and Surface Materials. Nonpoint Education for Municipal Officials, Technical Paper Number 8. University of Connecticut Cooperative Extension System, 1999.

[3] https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations

Moreno Valley Elmentary School Construction Run - Riverside-South Coast County, Summer

Moreno Valley Elmentary School Construction Run

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	82.00	1000sqft	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,455.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see assump file

Construction Phase - caleemod default schedule normalized over duration from applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no additional equipment required for Demo Haul

Off-road Equipment - assuming one excavator for finishing

Off-road Equipment -

Off-road Equipment - no additional equipment required for Grading Soil Haul

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - assuming 1 excavator for trenching phase

Trips and VMT - assuming 2 VT/water truck/day, see assump file for hauling trips

Demolition -

Grading -

Architectural Coating - Rule 1113, adjusted to account for only parking area

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	19,653.00	2,586.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	267.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	12.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	239,460.00	239,455.00
tblLandUse	LotAcreage	1.88	1.45
tblOffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblTripsAndVMT	HaulingTripNumber	19.00	20.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	2,000.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

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					
2020	4.1736	46.3690	25.0450	0.0953	18.2803	2.1998	20.4801	9.9877	2.0239	12.0116	0.0000	9,824.1964	9,824.1964	1.3385	0.0000	9,857.6597
2021	16.7158	24.0968	24.0405	0.0627	2.3516	0.9817	3.3333	0.6334	0.9230	1.5564	0.0000	6,215.5173	6,215.5173	0.7907	0.0000	6,235.2837
2022	16.6910	1.7843	3.3574	6.4700e-003	0.3800	0.0861	0.4639	0.1008	0.0837	0.1845	0.0000	630.2357	630.2357	0.1624	0.0000	630.8876
Maximum	**16.7158**	**46.3690**	**25.0450**	**0.0953**	**18.2803**	**2.1998**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**9,824.1964**	**9,824.1964**	**1.3385**	**0.0000**	**9,857.6597**

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					
2020	4.1736	46.3690	25.0450	0.0953	7.9208	2.1998	10.1206	4.2984	2.0239	6.3222	0.0000	9,824.1964	9,824.1964	1.3385	0.0000	9,857.6597
2021	16.7158	24.0968	24.0405	0.0627	2.1737	0.9817	3.1554	0.5897	0.9230	1.5127	0.0000	6,215.5173	6,215.5173	0.7907	0.0000	6,235.2837

2022	16.6910	1.7843	3.3574	6.4700e-003	0.3503	0.0861	0.4342	0.0935	0.0837	0.1772	0.0000	630.2357	630.2357	0.1624	0.0000	630.8876
Maximum	**16.7158**	**46.3690**	**25.0450**	**0.0953**	**7.9208**	**2.1998**	**10.1206**	**4.2984**	**2.0239**	**6.3222**	**0.0000**	**9,824.1964**	**9,824.1964**	**1.3385**	**0.0000**	**9,857.6597**

	ROG	NOx	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**	**50.29**	**0.00**	**43.53**	**53.54**	**0.00**	**41.74**	**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	Demolition	Demolition	8/1/2020	9/3/2020	5	24	a
2	Demolition Haul	Demolition	8/1/2020	9/3/2020	5	24	b
3	Site Preparation	Site Preparation	9/4/2020	9/21/2020	5	12	c
4	Grading	Grading	9/22/2020	10/23/2020	5	24	d
5	Grading Haul	Grading	9/22/2020	10/23/2020	5	24	e
6	Utilities Trenching	Trenching	10/25/2020	11/6/2020	5	10	f
7	Building Construction	Building Construction	11/9/2020	11/16/2021	5	267	g
8	Paving	Paving	11/17/2021	12/20/2021	5	24	h
9	Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	5	24	i
10	Finishing and Landscaping	Trenching	1/24/2022	2/4/2022	5	10	j

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 7.52

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 123,000; Non-Residential Outdoor: 41,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38

Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Excavators	0	8.00	158	0.38
Demolition Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading Haul	Excavators	0	8.00	158	0.38
Grading Haul	Graders	0	8.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Utilities Trenching	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Finishing and Landscaping	Excavators	1	8.00	158	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
Demolition	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition Haul	0	0.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Site Preparation	7	18.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	67.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Finishing and Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0128	1.1700e-003	0.0140	3.6900e-003	1.1200e-003	4.8100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451

Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1805**	**2.1900e-003**	**0.1827**	**0.0482**	**2.0500e-003**	**0.0502**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0120	1.1700e-003	0.0132	3.4900e-003	1.1200e-003	4.6100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1665**	**2.1900e-003**	**0.1687**	**0.0447**	**2.0500e-003**	**0.0468**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

3.3 Demolition Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1732	0.0000	0.1732	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	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**	**0.1732**	**0.0000**	**0.1732**	**0.0262**	**0.0000**	**0.0262**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.2900e-003	0.1973	0.0244	6.3000e-004	0.0146	6.3000e-004	0.0152	4.0000e-003	6.0000e-004	4.6000e-003		67.3139	67.3139	4.0100e-003		67.4142
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.2900e-003**	**0.1973**	**0.0244**	**6.3000e-004**	**0.0146**	**6.3000e-004**	**0.0152**	**4.0000e-003**	**6.0000e-004**	**4.6000e-003**		**67.3139**	**67.3139**	**4.0100e-003**		**67.4142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0740	0.0000	0.0740	0.0112	0.0000	0.0112			0.0000			0.0000
Off-Road	0.0000	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**	**0.0740**	**0.0000**	**0.0740**	**0.0112**	**0.0000**	**0.0112**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.2900e-003	0.1973	0.0244	6.3000e-004	0.0136	6.3000e-004	0.0142	3.7500e-003	6.0000e-004	4.3500e-003		67.3139	67.3139	4.0100e-003		67.4142
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.2900e-003**	**0.1973**	**0.0244**	**6.3000e-004**	**0.0136**	**6.3000e-004**	**0.0142**	**3.7500e-003**	**6.0000e-004**	**4.3500e-003**		**67.3139**	**67.3139**	**4.0100e-003**		**67.4142**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0128	1.1700e-003	0.0140	3.6900e-003	1.1200e-003	4.8100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141
Total	**0.0972**	**0.2600**	**0.7634**	**2.5100e-003**	**0.2140**	**2.3900e-003**	**0.2164**	**0.0571**	**2.2400e-003**	**0.0593**		**253.3652**	**253.3652**	**9.2100e-003**		**253.5955**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.7233**	**2.1974**	**9.9207**	**4.2454**	**2.0216**	**6.2670**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0120	1.1700e-003	0.0132	3.4900e-003	1.1200e-003	4.6100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0916	0.0542	0.7258	1.9900e-003	0.1855	1.2200e-003	0.1867	0.0495	1.1200e-003	0.0506		198.2870	198.2870	5.0800e-003		198.4141
Total	**0.0972**	**0.2600**	**0.7634**	**2.5100e-003**	**0.1975**	**2.3900e-003**	**0.1998**	**0.0530**	**2.2400e-003**	**0.0552**		**253.3652**	**253.3652**	**9.2100e-003**		**253.5955**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0128	1.1700e-003	0.0140	3.6900e-003	1.1200e-003	4.8100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1805**	**2.1900e-003**	**0.1827**	**0.0482**	**2.0500e-003**	**0.0502**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8011	0.0000	2.8011	1.4396	0.0000	1.4396			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.8011**	**1.2734**	**4.0746**	**1.4396**	**1.1716**	**2.6112**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0120	1.1700e-003	0.0132	3.4900e-003	1.1200e-003	4.6100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1665**	**2.1900e-003**	**0.1687**	**0.0447**	**2.0500e-003**	**0.0468**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

3.6 Grading Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0528	0.0000	0.0528	7.9900e-003	0.0000	7.9900e-003			0.0000			0.0000
Off-Road	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**	**0.0528**	**0.0000**	**0.0528**	**7.9900e-003**	**0.0000**	**7.9900e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4286	19.7322	2.4347	0.0635	1.4578	0.0629	1.5207	0.3996	0.0602	0.4598		6,731.3939	6,731.3939	0.4012		6,741.4226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4286**	**19.7322**	**2.4347**	**0.0635**	**1.4578**	**0.0629**	**1.5207**	**0.3996**	**0.0602**	**0.4598**		**6,731.3939**	**6,731.3939**	**0.4012**		**6,741.4226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0226	0.0000	0.0226	3.4200e-003	0.0000	3.4200e-003			0.0000			0.0000
Off-Road	0.0000	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**	**0.0226**	**0.0000**	**0.0226**	**3.4200e-003**	**0.0000**	**3.4200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4286	19.7322	2.4347	0.0635	1.3587	0.0629	1.4215	0.3753	0.0602	0.4354		6,731.3939	6,731.3939	0.4012		6,741.4226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4286**	**19.7322**	**2.4347**	**0.0635**	**1.3587**	**0.0629**	**1.4215**	**0.3753**	**0.0602**	**0.4354**		**6,731.3939**	**6,731.3939**	**0.4012**		**6,741.4226**

3.7 Utilities Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0153	9.0300e-003	0.1210	3.3000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		33.0478	33.0478	8.5000e-004		33.0690
Total	**0.0153**	**9.0300e-003**	**0.1210**	**3.3000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**33.0478**	**33.0478**	**8.5000e-004**		**33.0690**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0153	9.0300e-003	0.1210	3.3000e-004	0.0309	2.0000e-004	0.0311	8.2500e-003	1.9000e-004	8.4400e-003		33.0478	33.0478	8.5000e-004		33.0690
Total	**0.0153**	**9.0300e-003**	**0.1210**	**3.3000e-004**	**0.0309**	**2.0000e-004**	**0.0311**	**8.2500e-003**	**1.9000e-004**	**8.4400e-003**		**33.0478**	**33.0478**	**8.5000e-004**		**33.0690**

3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1867	6.8938	1.2612	0.0175	0.4290	0.0392	0.4683	0.1235	0.0375	0.1610		1,845.1192	1,845.1192	0.1384		1,848.5790
Worker	0.8753	0.5176	6.9353	0.0190	1.9226	0.0116	1.9342	0.5099	0.0107	0.5206		1,894.7426	1,894.7426	0.0486		1,895.9568
Total	**1.0620**	**7.4114**	**8.1965**	**0.0365**	**2.3516**	**0.0509**	**2.4025**	**0.6334**	**0.0482**	**0.6816**		**3,739.8618**	**3,739.8618**	**0.1870**		**3,744.5358**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1867	6.8938	1.2612	0.0175	0.4015	0.0392	0.4408	0.1168	0.0375	0.1543		1,845.1192	1,845.1192	0.1384		1,848.5790
Worker	0.8753	0.5176	6.9353	0.0190	1.7721	0.0116	1.7838	0.4730	0.0107	0.4837		1,894.7426	1,894.7426	0.0486		1,895.9568
Total	**1.0620**	**7.4114**	**8.1965**	**0.0365**	**2.1737**	**0.0509**	**2.2245**	**0.5897**	**0.0482**	**0.6380**		**3,739.8618**	**3,739.8618**	**0.1870**		**3,744.5358**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1564	6.2001	1.1062	0.0174	0.4290	0.0118	0.4408	0.1235	0.0113	0.1348		1,830.7819	1,830.7819	0.1310		1,834.0562

Worker	0.8154	0.4646	6.3590	0.0184	1.9226	0.0113	1.9339	0.5099	0.0104	0.5203		1,831.3716	1,831.3716	0.0437		1,832.4633
Total	**0.9719**	**6.6647**	**7.4653**	**0.0357**	**2.3516**	**0.0231**	**2.3747**	**0.6334**	**0.0217**	**0.6551**		**3,662.1534**	**3,662.1534**	**0.1746**		**3,666.5195**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1564	6.2001	1.1062	0.0174	0.4015	0.0118	0.4133	0.1168	0.0113	0.1281		1,830.7819	1,830.7819	0.1310		1,834.0562
Worker	0.8154	0.4646	6.3590	0.0184	1.7721	0.0113	1.7835	0.4730	0.0104	0.4834		1,831.3716	1,831.3716	0.0437		1,832.4633
Total	**0.9719**	**6.6647**	**7.4653**	**0.0357**	**2.1737**	**0.0231**	**2.1968**	**0.5897**	**0.0217**	**0.6114**		**3,662.1534**	**3,662.1534**	**0.1746**		**3,666.5195**

3.9 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1546**	**9.9000e-004**	**0.1555**	**0.0413**	**9.1000e-004**	**0.0422**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.10 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1612	0.0918	1.2570	3.6300e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		362.0153	362.0153	8.6300e-003		362.2311
Total	**0.1612**	**0.0918**	**1.2570**	**3.6300e-003**	**0.3800**	**2.2400e-003**	**0.3823**	**0.1008**	**2.0600e-003**	**0.1029**		**362.0153**	**362.0153**	**8.6300e-003**		**362.2311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1612	0.0918	1.2570	3.6300e-003	0.3503	2.2400e-003	0.3525	0.0935	2.0600e-003	0.0956		362.0153	362.0153	8.6300e-003		362.2311
Total	**0.1612**	**0.0918**	**1.2570**	**3.6300e-003**	**0.3503**	**2.2400e-003**	**0.3525**	**0.0935**	**2.0600e-003**	**0.0956**		**362.0153**	**362.0153**	**8.6300e-003**		**362.2311**

3.10 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.0826	1.1594	3.5000e-003	0.3800	2.1800e-003	0.3822	0.1008	2.0100e-003	0.1028		348.7877	348.7877	7.7500e-003		348.9815
Total	**0.1508**	**0.0826**	**1.1594**	**3.5000e-003**	**0.3800**	**2.1800e-003**	**0.3822**	**0.1008**	**2.0100e-003**	**0.1028**		**348.7877**	**348.7877**	**7.7500e-003**		**348.9815**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.0826	1.1594	3.5000e-003	0.3503	2.1800e-003	0.3525	0.0935	2.0100e-003	0.0955		348.7877	348.7877	7.7500e-003		348.9815
Total	**0.1508**	**0.0826**	**1.1594**	**3.5000e-003**	**0.3503**	**2.1800e-003**	**0.3525**	**0.0935**	**2.0100e-003**	**0.0955**		**348.7877**	**348.7877**	**7.7500e-003**		**348.9815**

3.11 Finishing and Landscaping - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790		500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**		**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0133	7.2900e-003	0.1023	3.1000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		30.7754	30.7754	6.8000e-004		30.7925
Total	**0.0133**	**7.2900e-003**	**0.1023**	**3.1000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**30.7754**	**30.7754**	**6.8000e-004**		**30.7925**

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	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790	0.0000	500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**	**0.0000**	**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0133	7.2900e-003	0.1023	3.1000e-004	0.0309	1.9000e-004	0.0311	8.2500e-003	1.8000e-004	8.4300e-003		30.7754	30.7754	6.8000e-004		30.7925
Total	**0.0133**	**7.2900e-003**	**0.1023**	**3.1000e-004**	**0.0309**	**1.9000e-004**	**0.0311**	**8.2500e-003**	**1.8000e-004**	**8.4300e-003**		**30.7754**	**30.7754**	**6.8000e-004**		**30.7925**

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

Moreno Valley Elmentary School Construction Run - Riverside-South Coast County, Winter

Moreno Valley Elmentary School Construction Run

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	82.00	1000sqft	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,455.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see assump file

Construction Phase - caleemod default schedule normalized over duration from applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no additional equipment required for Demo Haul

Off-road Equipment - assuming one excavator for finishing

Off-road Equipment -

Off-road Equipment - no additional equipment required for Grading Soil Haul

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - assuming 1 excavator for trenching phase

Trips and VMT - assuming 2 VT/water truck/day, see assump file for hauling trips

Demolition -

Grading -

Architectural Coating - Rule 1113, adjusted to account for only parking area

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	19,653.00	2,586.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	267.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	12.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	239,460.00	239,455.00
tblLandUse	LotAcreage	1.88	1.45
tblOffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblTripsAndVMT	HaulingTripNumber	19.00	20.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	2,000.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

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					
2020	4.1721	46.5420	23.9354	0.0935	18.2803	2.1998	20.4801	9.9877	2.0239	12.0116	0.0000	9,636.7109	9,636.7109	1.3764	0.0000	9,671.1205
2021	16.7128	24.0593	23.0168	0.0601	2.3516	0.9821	3.3337	0.6334	0.9233	1.5567	0.0000	5,958.2174	5,958.2174	0.7999	0.0000	5,978.2153
2022	16.6886	1.7845	3.3376	6.1100e-003	0.3800	0.0861	0.4639	0.1008	0.0837	0.1845	0.0000	594.3633	594.3633	0.1623	0.0000	594.9901
Maximum	**16.7128**	**46.5420**	**23.9354**	**0.0935**	**18.2803**	**2.1998**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**9,636.7109**	**9,636.7109**	**1.3764**	**0.0000**	**9,671.1205**

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					
2020	4.1721	46.5420	23.9354	0.0935	7.9208	2.1998	10.1206	4.2984	2.0239	6.3222	0.0000	9,636.7109	9,636.7109	1.3764	0.0000	9,671.1205
2021	16.7128	24.0593	23.0168	0.0601	2.1737	0.9821	3.1558	0.5897	0.9233	1.5131	0.0000	5,958.2174	5,958.2174	0.7999	0.0000	5,978.2153
2022	16.6886	1.7845	3.3376	6.1100e-003	0.3503	0.0861	0.4342	0.0935	0.0837	0.1772	0.0000	594.3633	594.3633	0.1623	0.0000	594.9901
Maximum	**16.7128**	**46.5420**	**23.9354**	**0.0935**	**7.9208**	**2.1998**	**10.1206**	**4.2984**	**2.0239**	**6.3222**	**0.0000**	**9,636.7109**	**9,636.7109**	**1.3764**	**0.0000**	**9,671.1205**

	ROG	NOx	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	50.29	0.00	43.53	53.54	0.00	41.74	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	Demolition	Demolition	8/1/2020	9/3/2020	5	24	a
2	Demolition Haul	Demolition	8/1/2020	9/3/2020	5	24	b
3	Site Preparation	Site Preparation	9/4/2020	9/21/2020	5	12	c
4	Grading	Grading	9/22/2020	10/23/2020	5	24	d
5	Grading Haul	Grading	9/22/2020	10/23/2020	5	24	e
6	Utilities Trenching	Trenching	10/25/2020	11/6/2020	5	10	f
7	Building Construction	Building Construction	11/9/2020	11/16/2021	5	267	g
8	Paving	Paving	11/17/2021	12/20/2021	5	24	h
9	Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	5	24	i
10	Finishing and Landscaping	Trenching	1/24/2022	2/4/2022	5	10	j

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 7.52

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 123,000; Non-Residential Outdoor: 41,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Excavators	0	8.00	158	0.38

Demolition Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading Haul	Excavators	0	8.00	158	0.38
Grading Haul	Graders	0	8.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Utilities Trenching	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Finishing and Landscaping	Excavators	1	8.00	158	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
Demolition	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition Haul	0	0.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Utilities Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	67.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Finishing and Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0128	1.1800e-003	0.0140	3.6900e-003	1.1300e-003	4.8200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1805**	**2.2000e-003**	**0.1827**	**0.0482**	**2.0600e-003**	**0.0502**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0120	1.1800e-003	0.0132	3.4900e-003	1.1300e-003	4.6200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1665**	**2.2000e-003**	**0.1687**	**0.0447**	**2.0600e-003**	**0.0468**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

3.3 Demolition Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1732	0.0000	0.1732	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	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**	**0.1732**	**0.0000**	**0.1732**	**0.0262**	**0.0000**	**0.0262**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.5100e-003	0.1991	0.0285	6.2000e-004	0.0146	6.4000e-004	0.0152	4.0000e-003	6.1000e-004	4.6100e-003		65.6298	65.6298	4.3900e-003		65.7396
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.5100e-003**	**0.1991**	**0.0285**	**6.2000e-004**	**0.0146**	**6.4000e-004**	**0.0152**	**4.0000e-003**	**6.1000e-004**	**4.6100e-003**		**65.6298**	**65.6298**	**4.3900e-003**		**65.7396**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0740	0.0000	0.0740	0.0112	0.0000	0.0112			0.0000			0.0000
Off-Road	0.0000	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**	**0.0740**	**0.0000**	**0.0740**	**0.0112**	**0.0000**	**0.0112**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.5100e-003	0.1991	0.0285	6.2000e-004	0.0136	6.4000e-004	0.0142	3.7500e-003	6.1000e-004	4.3600e-003		65.6298	65.6298	4.3900e-003		65.7396
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.5100e-003**	**0.1991**	**0.0285**	**6.2000e-004**	**0.0136**	**6.4000e-004**	**0.0142**	**3.7500e-003**	**6.1000e-004**	**4.3600e-003**		**65.6298**	**65.6298**	**4.3900e-003**		**65.7396**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0128	1.1800e-003	0.0140	3.6900e-003	1.1300e-003	4.8200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929
Total	**0.0956**	**0.2608**	**0.6312**	**2.2900e-003**	**0.2140**	**2.4000e-003**	**0.2164**	**0.0571**	**2.2500e-003**	**0.0593**		**230.8910**	**230.8910**	**9.0200e-003**		**231.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.7233**	**2.1974**	**9.9207**	**4.2454**	**2.0216**	**6.2670**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0120	1.1800e-003	0.0132	3.4900e-003	1.1300e-003	4.6200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0897	0.0560	0.5871	1.7900e-003	0.1855	1.2200e-003	0.1867	0.0495	1.1200e-003	0.0506		177.8824	177.8824	4.4200e-003		177.9929
Total	**0.0956**	**0.2608**	**0.6312**	**2.2900e-003**	**0.1975**	**2.4000e-003**	**0.1998**	**0.0530**	**2.2500e-003**	**0.0552**		**230.8910**	**230.8910**	**9.0200e-003**		**231.1164**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0128	1.1800e-003	0.0140	3.6900e-003	1.1300e-003	4.8200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1805**	**2.2000e-003**	**0.1827**	**0.0482**	**2.0600e-003**	**0.0502**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8011	0.0000	2.8011	1.4396	0.0000	1.4396			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.8011**	**1.2734**	**4.0746**	**1.4396**	**1.1716**	**2.6112**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0120	1.1800e-003	0.0132	3.4900e-003	1.1300e-003	4.6200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1665**	**2.2000e-003**	**0.1687**	**0.0447**	**2.0600e-003**	**0.0468**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

3.6 Grading Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0528	0.0000	0.0528	7.9900e-003	0.0000	7.9900e-003			0.0000			0.0000
Off-Road	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**	**0.0528**	**0.0000**	**0.0528**	**7.9900e-003**	**0.0000**	**7.9900e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4508	19.9047	2.8515	0.0619	1.4578	0.0638	1.5216	0.3996	0.0610	0.4606		6,562.9818	6,562.9818	0.4391		6,573.9590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4508**	**19.9047**	**2.8515**	**0.0619**	**1.4578**	**0.0638**	**1.5216**	**0.3996**	**0.0610**	**0.4606**		**6,562.9818**	**6,562.9818**	**0.4391**		**6,573.9590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0226	0.0000	0.0226	3.4200e-003	0.0000	3.4200e-003			0.0000			0.0000
Off-Road	0.0000	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**	**0.0226**	**0.0000**	**0.0226**	**3.4200e-003**	**0.0000**	**3.4200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4508	19.9047	2.8515	0.0619	1.3587	0.0638	1.4224	0.3753	0.0610	0.4363		6,562.9818	6,562.9818	0.4391		6,573.9590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4508**	**19.9047**	**2.8515**	**0.0619**	**1.3587**	**0.0638**	**1.4224**	**0.3753**	**0.0610**	**0.4363**		**6,562.9818**	**6,562.9818**	**0.4391**		**6,573.9590**

3.7 Utilities Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	9.3400e-003	0.0979	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		29.6471	29.6471	7.4000e-004		29.6655
Total	**0.0150**	**9.3400e-003**	**0.0979**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**29.6471**	**29.6471**	**7.4000e-004**		**29.6655**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	9.3400e-003	0.0979	3.0000e-004	0.0309	2.0000e-004	0.0311	8.2500e-003	1.9000e-004	8.4400e-003		29.6471	29.6471	7.4000e-004		29.6655
Total	**0.0150**	**9.3400e-003**	**0.0979**	**3.0000e-004**	**0.0309**	**2.0000e-004**	**0.0311**	**8.2500e-003**	**1.9000e-004**	**8.4400e-003**		**29.6471**	**29.6471**	**7.4000e-004**		**29.6655**

3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1970	6.8576	1.4767	0.0169	0.4290	0.0397	0.4687	0.1235	0.0380	0.1615		1,775.7865	1,775.7865	0.1540		1,779.6365
Worker	0.8572	0.5355	5.6102	0.0171	1.9226	0.0116	1.9342	0.5099	0.0107	0.5206		1,699.7656	1,699.7656	0.0422		1,700.8210
Total	**1.0541**	**7.3931**	**7.0869**	**0.0339**	**2.3516**	**0.0513**	**2.4029**	**0.6334**	**0.0487**	**0.6821**		**3,475.5521**	**3,475.5521**	**0.1962**		**3,480.4576**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1970	6.8576	1.4767	0.0169	0.4015	0.0397	0.4412	0.1168	0.0380	0.1547		1,775.7865	1,775.7865	0.1540		1,779.6365
Worker	0.8572	0.5355	5.6102	0.0171	1.7721	0.0116	1.7838	0.4730	0.0107	0.4837		1,699.7656	1,699.7656	0.0422		1,700.8210
Total	**1.0541**	**7.3931**	**7.0869**	**0.0339**	**2.1737**	**0.0513**	**2.2250**	**0.5897**	**0.0487**	**0.6384**		**3,475.5521**	**3,475.5521**	**0.1962**		**3,480.4576**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1661	6.1467	1.3086	0.0167	0.4290	0.0122	0.4412	0.1235	0.0116	0.1351		1,761.9206	1,761.9206	0.1459		1,765.5690
Worker	0.8002	0.4804	5.1330	0.0165	1.9226	0.0113	1.9339	0.5099	0.0104	0.5203		1,642.9329	1,642.9329	0.0380		1,643.8820
Total	**0.9664**	**6.6272**	**6.4416**	**0.0332**	**2.3516**	**0.0235**	**2.3751**	**0.6334**	**0.0221**	**0.6554**		**3,404.8535**	**3,404.8535**	**0.1839**		**3,409.4511**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1661	6.1467	1.3086	0.0167	0.4015	0.0122	0.4137	0.1168	0.0116	0.1284		1,761.9206	1,761.9206	0.1459		1,765.5690
Worker	0.8002	0.4804	5.1330	0.0165	1.7721	0.0113	1.7835	0.4730	0.0104	0.4834		1,642.9329	1,642.9329	0.0380		1,643.8820
Total	**0.9664**	**6.6272**	**6.4416**	**0.0332**	**2.1737**	**0.0235**	**2.1971**	**0.5897**	**0.0221**	**0.6118**		**3,404.8535**	**3,404.8535**	**0.1839**		**3,409.4511**

3.9 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1546**	**9.9000e-004**	**0.1555**	**0.0413**	**9.1000e-004**	**0.0422**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.10 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1582	0.0950	1.0147	3.2600e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		324.7658	324.7658	7.5000e-003		324.9534
Total	**0.1582**	**0.0950**	**1.0147**	**3.2600e-003**	**0.3800**	**2.2400e-003**	**0.3823**	**0.1008**	**2.0600e-003**	**0.1029**		**324.7658**	**324.7658**	**7.5000e-003**		**324.9534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1582	0.0950	1.0147	3.2600e-003	0.3503	2.2400e-003	0.3525	0.0935	2.0600e-003	0.0956		324.7658	324.7658	7.5000e-003		324.9534
Total	**0.1582**	**0.0950**	**1.0147**	**3.2600e-003**	**0.3503**	**2.2400e-003**	**0.3525**	**0.0935**	**2.0600e-003**	**0.0956**		**324.7658**	**324.7658**	**7.5000e-003**		**324.9534**

3.10 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1484	0.0854	0.9345	3.1400e-003	0.3800	2.1800e-003	0.3822	0.1008	2.0100e-003	0.1028		312.9152	312.9152	6.7500e-003		313.0839
Total	**0.1484**	**0.0854**	**0.9345**	**3.1400e-003**	**0.3800**	**2.1800e-003**	**0.3822**	**0.1008**	**2.0100e-003**	**0.1028**		**312.9152**	**312.9152**	**6.7500e-003**		**313.0839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1484	0.0854	0.9345	3.1400e-003	0.3503	2.1800e-003	0.3525	0.0935	2.0100e-003	0.0955		312.9152	312.9152	6.7500e-003		313.0839
Total	**0.1484**	**0.0854**	**0.9345**	**3.1400e-003**	**0.3503**	**2.1800e-003**	**0.3525**	**0.0935**	**2.0100e-003**	**0.0955**		**312.9152**	**312.9152**	**6.7500e-003**		**313.0839**

3.11 Finishing and Landscaping - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790		500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**		**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0131	7.5400e-003	0.0825	2.8000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		27.6102	27.6102	6.0000e-004		27.6251
Total	**0.0131**	**7.5400e-003**	**0.0825**	**2.8000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**27.6102**	**27.6102**	**6.0000e-004**		**27.6251**

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	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790	0.0000	500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**	**0.0000**	**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0131	7.5400e-003	0.0825	2.8000e-004	0.0309	1.9000e-004	0.0311	8.2500e-003	1.8000e-004	8.4300e-003		27.6102	27.6102	6.0000e-004		27.6251
Total	**0.0131**	**7.5400e-003**	**0.0825**	**2.8000e-004**	**0.0309**	**1.9000e-004**	**0.0311**	**8.2500e-003**	**1.8000e-004**	**8.4300e-003**		**27.6102**	**27.6102**	**6.0000e-004**		**27.6251**

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

Moreno Valley Elmentary School Construction Run - Riverside-South Coast County, Annual

Moreno Valley Elmentary School Construction Run

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	82.00	1000sqft	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,455.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see assump file

Construction Phase - caleemod default schedule normalized over duration from applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no additional equipment required for Demo Haul

Off-road Equipment - assuming one excavator for finishing

Off-road Equipment -

Off-road Equipment - no additional equipment required for Grading Soil Haul

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - assuming 1 excavator for trenching phase

Trips and VMT - assuming 2 VT/water truck/day, see assump file for hauling trips

Demolition -

Grading -

Architectural Coating - Rule 1113, adjusted to account for only parking area

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	19,653.00	2,586.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	267.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	12.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	239,460.00	239,455.00
tblLandUse	LotAcreage	1.88	1.45
tblOffRoadEquipment	OffRoadEquipmentType	Cement and Mortar Mixers	Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblTripsAndVMT	HaulingTripNumber	19.00	20.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	2,000.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

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					
2020	0.1627	1.7551	1.1191	3.1000e-003	0.2580	0.0726	0.3305	0.1189	0.0675	0.1863	0.0000	281.6795	281.6795	0.0480	0.0000	282.8802
2021	0.4126	2.9190	2.8384	7.2600e-003	0.2674	0.1205	0.3879	0.0721	0.1132	0.1853	0.0000	652.8352	652.8352	0.0899	0.0000	655.0828
2022	0.1262	0.0202	0.0377	7.0000e-005	2.9700e-003	1.0600e-003	4.0300e-003	7.9000e-004	1.0200e-003	1.8100e-003	0.0000	6.4953	6.4953	9.1000e-004	0.0000	6.5180
Maximum	**0.4126**	**2.9190**	**2.8384**	**7.2600e-003**	**0.2674**	**0.1205**	**0.3879**	**0.1189**	**0.1132**	**0.1863**	**0.0000**	**652.8352**	**652.8352**	**0.0899**	**0.0000**	**655.0828**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1627	1.7551	1.1191	3.1000e-003	0.1443	0.0726	0.2169	0.0602	0.0675	0.1276	0.0000	281.6793	281.6793	0.0480	0.0000	282.8801
2021	0.4126	2.9190	2.8384	7.2600e-003	0.2472	0.1205	0.3678	0.0672	0.1132	0.1803	0.0000	652.8349	652.8349	0.0899	0.0000	655.0824
2022	0.1262	0.0202	0.0377	7.0000e-005	2.7400e-003	1.0600e-003	3.8000e-003	7.3000e-004	1.0200e-003	1.7600e-003	0.0000	6.4953	6.4953	9.1000e-004	0.0000	6.5180
Maximum	**0.4126**	**2.9190**	**2.8384**	**7.2600e-003**	**0.2472**	**0.1205**	**0.3678**	**0.0672**	**0.1132**	**0.1803**	**0.0000**	**652.8349**	**652.8349**	**0.0899**	**0.0000**	**655.0824**

	ROG	NOx	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**	**25.37**	**0.00**	**18.55**	**33.23**	**0.00**	**17.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-1-2020**	**10-31-2020**	1.5573	1.5573
2	**11-1-2020**	**1-31-2021**	0.8670	0.8670
3	**2-1-2021**	**4-30-2021**	0.8563	0.8563
4	**5-1-2021**	**7-31-2021**	0.8861	0.8861
5	**8-1-2021**	**10-31-2021**	0.8857	0.8857
6	**11-1-2021**	**1-31-2022**	0.5571	0.5571
7	**2-1-2022**	**4-30-2022**	0.0029	0.0029
		Highest	1.5573	1.5573

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/1/2020	9/3/2020	5	24	a
2	Demolition Haul	Demolition	8/1/2020	9/3/2020	5	24	b
3	Site Preparation	Site Preparation	9/4/2020	9/21/2020	5	12	c
4	Grading	Grading	9/22/2020	10/23/2020	5	24	d
5	Grading Haul	Grading	9/22/2020	10/23/2020	5	24	e
6	Utilities Trenching	Trenching	10/25/2020	11/6/2020	5	10	f
7	Building Construction	Building Construction	11/9/2020	11/16/2021	5	267	g
8	Paving	Paving	11/17/2021	12/20/2021	5	24	h
9	Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	5	24	i
10	Finishing and Landscaping	Trenching	1/24/2022	2/4/2022	5	10	j

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 7.52

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 123,000; Non-Residential Outdoor: 41,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Excavators	0	8.00	158	0.38
Demolition Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading Haul	Excavators	0	8.00	158	0.38
Grading Haul	Graders	0	8.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Utilities Trenching	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Finishing and Landscaping	Excavators	1	8.00	158	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
Demolition	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition Haul	0	0.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	67.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Finishing and Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0398	0.3984	0.2610	4.7000e-004		0.0199	0.0199		0.0185	0.0185	0.0000	40.7983	40.7983	0.0115	0.0000	41.0863
Total	**0.0398**	**0.3984**	**0.2610**	**4.7000e-004**		**0.0199**	**0.0199**		**0.0185**	**0.0185**	**0.0000**	**40.7983**	**40.7983**	**0.0115**	**0.0000**	**41.0863**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.7000e-004	4.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**2.1300e-003**	**2.0000e-005**	**2.1600e-003**	**5.7000e-004**	**2.0000e-005**	**6.0000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

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	0.0398	0.3984	0.2610	4.7000e-004		0.0199	0.0199		0.0185	0.0185	0.0000	40.7983	40.7983	0.0115	0.0000	41.0862
Total	**0.0398**	**0.3984**	**0.2610**	**4.7000e-004**		**0.0199**	**0.0199**		**0.0185**	**0.0185**	**0.0000**	**40.7983**	**40.7983**	**0.0115**	**0.0000**	**41.0862**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8400e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**1.9600e-003**	**2.0000e-005**	**2.0000e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

3.3 Demolition Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0800e-003	0.0000	2.0800e-003	3.1000e-004	0.0000	3.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**2.0800e-003**	**0.0000**	**2.0800e-003**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.0000e-005	2.4200e-003	3.1000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7251	0.7251	5.0000e-005	0.0000	0.7262
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0000e-005**	**2.4200e-003**	**3.1000e-004**	**1.0000e-005**	**1.7000e-004**	**1.0000e-005**	**1.8000e-004**	**5.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.7251**	**0.7251**	**5.0000e-005**	**0.0000**	**0.7262**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9000e-004	0.0000	8.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**8.9000e-004**	**0.0000**	**8.9000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.0000e-005	2.4200e-003	3.1000e-004	1.0000e-005	1.6000e-004	1.0000e-005	1.7000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7251	0.7251	5.0000e-005	0.0000	0.7262
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0000e-005**	**2.4200e-003**	**3.1000e-004**	**1.0000e-005**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**4.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.7251**	**0.7251**	**5.0000e-005**	**0.0000**	**0.7262**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1084	0.0000	0.1084	0.0596	0.0000	0.0596	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2545	0.1291	2.3000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	20.0584	20.0584	6.4900e-003	0.0000	20.2206
Total	**0.0245**	**0.2545**	**0.1291**	**2.3000e-004**	**0.1084**	**0.0132**	**0.1216**	**0.0596**	**0.0121**	**0.0717**	**0.0000**	**20.0584**	**20.0584**	**6.4900e-003**	**0.0000**	**20.2206**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.2500e-003	2.4000e-004	0.0000	8.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2951	0.2951	2.0000e-005	0.0000	0.2957
Worker	5.0000e-004	3.5000e-004	3.7100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9932	0.9932	2.0000e-005	0.0000	0.9938
Total	**5.3000e-004**	**1.6000e-003**	**3.9500e-003**	**1.0000e-005**	**1.2700e-003**	**2.0000e-005**	**1.2700e-003**	**3.4000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**1.2882**	**1.2882**	**4.0000e-005**	**0.0000**	**1.2894**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0463	0.0000	0.0463	0.0255	0.0000	0.0255	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2545	0.1291	2.3000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	20.0584	20.0584	6.4900e-003	0.0000	20.2206
Total	**0.0245**	**0.2545**	**0.1291**	**2.3000e-004**	**0.0463**	**0.0132**	**0.0595**	**0.0255**	**0.0121**	**0.0376**	**0.0000**	**20.0584**	**20.0584**	**6.4900e-003**	**0.0000**	**20.2206**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.2500e-003	2.4000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2951	0.2951	2.0000e-005	0.0000	0.2957
Worker	5.0000e-004	3.5000e-004	3.7100e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.1000e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9932	0.9932	2.0000e-005	0.0000	0.9938
Total	**5.3000e-004**	**1.6000e-003**	**3.9500e-003**	**1.0000e-005**	**1.1600e-003**	**2.0000e-005**	**1.1800e-003**	**3.1000e-004**	**2.0000e-005**	**3.3000e-004**	**0.0000**	**1.2882**	**1.2882**	**4.0000e-005**	**0.0000**	**1.2894**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0786	0.0000	0.0786	0.0404	0.0000	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3166	0.1926	3.6000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	31.2705	31.2705	0.0101	0.0000	31.5233
Total	**0.0292**	**0.3166**	**0.1926**	**3.6000e-004**	**0.0786**	**0.0153**	**0.0939**	**0.0404**	**0.0141**	**0.0545**	**0.0000**	**31.2705**	**31.2705**	**0.0101**	**0.0000**	**31.5233**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.7000e-004	4.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**2.1300e-003**	**2.0000e-005**	**2.1600e-003**	**5.7000e-004**	**2.0000e-005**	**6.0000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0336	0.0000	0.0336	0.0173	0.0000	0.0173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3166	0.1926	3.6000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	31.2705	31.2705	0.0101	0.0000	31.5233
Total	**0.0292**	**0.3166**	**0.1926**	**3.6000e-004**	**0.0336**	**0.0153**	**0.0489**	**0.0173**	**0.0141**	**0.0313**	**0.0000**	**31.2705**	**31.2705**	**0.0101**	**0.0000**	**31.5233**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8400e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**1.9600e-003**	**2.0000e-005**	**2.0000e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

3.6 Grading Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3000e-004	0.0000	6.3000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**6.3000e-004**	**0.0000**	**6.3000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.2600e-003	0.2425	0.0314	7.5000e-004	0.0172	7.6000e-004	0.0180	4.7300e-003	7.3000e-004	5.4600e-003	0.0000	72.5094	72.5094	4.5400e-003	0.0000	72.6230
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.2600e-003**	**0.2425**	**0.0314**	**7.5000e-004**	**0.0172**	**7.6000e-004**	**0.0180**	**4.7300e-003**	**7.3000e-004**	**5.4600e-003**	**0.0000**	**72.5094**	**72.5094**	**4.5400e-003**	**0.0000**	**72.6230**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.2600e-003	0.2425	0.0314	7.5000e-004	0.0161	7.6000e-004	0.0168	4.4500e-003	7.3000e-004	5.1700e-003	0.0000	72.5094	72.5094	4.5400e-003	0.0000	72.6230
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.2600e-003**	**0.2425**	**0.0314**	**7.5000e-004**	**0.0161**	**7.6000e-004**	**0.0168**	**4.4500e-003**	**7.3000e-004**	**5.1700e-003**	**0.0000**	**72.5094**	**72.5094**	**4.5400e-003**	**0.0000**	**72.6230**

3.7 Utilities Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2200e-003	0.0121	0.0163	3.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.2685	2.2685	7.3000e-004	0.0000	2.2868
Total	**1.2200e-003**	**0.0121**	**0.0163**	**3.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.4000e-004**	**5.4000e-004**	**0.0000**	**2.2685**	**2.2685**	**7.3000e-004**	**0.0000**	**2.2868**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1379	0.1379	0.0000	0.0000	0.1380
Total	**7.0000e-005**	**5.0000e-005**	**5.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1379**	**0.1379**	**0.0000**	**0.0000**	**0.1380**

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	1.2200e-003	0.0121	0.0163	3.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.2685	2.2685	7.3000e-004	0.0000	2.2868
Total	**1.2200e-003**	**0.0121**	**0.0163**	**3.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.4000e-004**	**5.4000e-004**	**0.0000**	**2.2685**	**2.2685**	**7.3000e-004**	**0.0000**	**2.2868**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1379	0.1379	0.0000	0.0000	0.1380
Total	**7.0000e-005**	**5.0000e-005**	**5.2000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1379**	**0.1379**	**0.0000**	**0.0000**	**0.1380**

3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0413	0.3741	0.3286	5.2000e-004		0.0218	0.0218		0.0205	0.0205	0.0000	45.1640	45.1640	0.0110	0.0000	45.4394
Total	**0.0413**	**0.3741**	**0.3286**	**5.2000e-004**		**0.0218**	**0.0218**		**0.0205**	**0.0205**	**0.0000**	**45.1640**	**45.1640**	**0.0110**	**0.0000**	**45.4394**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7100e-003	0.1359	0.0266	3.4000e-004	8.2500e-003	7.7000e-004	9.0200e-003	2.3800e-003	7.4000e-004	3.1200e-003	0.0000	32.1252	32.1252	2.5700e-003	0.0000	32.1894
Worker	0.0154	0.0108	0.1153	3.4000e-004	0.0369	2.3000e-004	0.0371	9.7900e-003	2.1000e-004	0.0100	0.0000	30.8431	30.8431	7.7000e-004	0.0000	30.8624
Total	**0.0191**	**0.1467**	**0.1419**	**6.8000e-004**	**0.0451**	**1.0000e-003**	**0.0461**	**0.0122**	**9.5000e-004**	**0.0131**	**0.0000**	**62.9684**	**62.9684**	**3.3400e-003**	**0.0000**	**63.0519**

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	0.0413	0.3741	0.3286	5.2000e-004		0.0218	0.0218		0.0205	0.0205	0.0000	45.1639	45.1639	0.0110	0.0000	45.4394
Total	**0.0413**	**0.3741**	**0.3286**	**5.2000e-004**		**0.0218**	**0.0218**		**0.0205**	**0.0205**	**0.0000**	**45.1639**	**45.1639**	**0.0110**	**0.0000**	**45.4394**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7100e-003	0.1359	0.0266	3.4000e-004	7.7300e-003	7.7000e-004	8.4900e-003	2.2500e-003	7.4000e-004	2.9900e-003	0.0000	32.1252	32.1252	2.5700e-003	0.0000	32.1894
Worker	0.0154	0.0108	0.1153	3.4000e-004	0.0340	2.3000e-004	0.0342	9.0800e-003	2.1000e-004	9.2900e-003	0.0000	30.8431	30.8431	7.7000e-004	0.0000	30.8624
Total	**0.0191**	**0.1467**	**0.1419**	**6.8000e-004**	**0.0417**	**1.0000e-003**	**0.0427**	**0.0113**	**9.5000e-004**	**0.0123**	**0.0000**	**62.9684**	**62.9684**	**3.3400e-003**	**0.0000**	**63.0519**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2167	1.9873	1.8896	3.0700e-003		0.1093	0.1093		0.1028	0.1028	0.0000	264.0665	264.0665	0.0637	0.0000	265.6592
Total	**0.2167**	**1.9873**	**1.8896**	**3.0700e-003**		**0.1093**	**0.1093**		**0.1028**	**0.1028**	**0.0000**	**264.0665**	**264.0665**	**0.0637**	**0.0000**	**265.6592**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0182	0.7122	0.1370	1.9500e-003	0.0482	1.3600e-003	0.0496	0.0139	1.3000e-003	0.0152	0.0000	186.3467	186.3467	0.0142	0.0000	186.7021
Worker	0.0841	0.0567	0.6173	1.9300e-003	0.2155	1.2900e-003	0.2168	0.0572	1.1900e-003	0.0584	0.0000	174.2850	174.2850	4.0600e-003	0.0000	174.3865
Total	**0.1023**	**0.7688**	**0.7543**	**3.8800e-003**	**0.2638**	**2.6500e-003**	**0.2664**	**0.0712**	**2.4900e-003**	**0.0736**	**0.0000**	**360.6317**	**360.6317**	**0.0183**	**0.0000**	**361.0886**

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	0.2167	1.9873	1.8896	3.0700e-003		0.1093	0.1093		0.1028	0.1028	0.0000	264.0662	264.0662	0.0637	0.0000	265.6589
Total	**0.2167**	**1.9873**	**1.8896**	**3.0700e-003**		**0.1093**	**0.1093**		**0.1028**	**0.1028**	**0.0000**	**264.0662**	**264.0662**	**0.0637**	**0.0000**	**265.6589**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0182	0.7122	0.1370	1.9500e-003	0.0452	1.3600e-003	0.0465	0.0132	1.3000e-003	0.0145	0.0000	186.3467	186.3467	0.0142	0.0000	186.7021
Worker	0.0841	0.0567	0.6173	1.9300e-003	0.1987	1.2900e-003	0.2000	0.0531	1.1900e-003	0.0543	0.0000	174.2850	174.2850	4.0600e-003	0.0000	174.3865
Total	**0.1023**	**0.7688**	**0.7543**	**3.8800e-003**	**0.2439**	**2.6500e-003**	**0.2465**	**0.0663**	**2.4900e-003**	**0.0688**	**0.0000**	**360.6317**	**360.6317**	**0.0183**	**0.0000**	**361.0886**

3.9 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0151	0.1550	0.1758	2.7000e-004		8.1300e-003	8.1300e-003		7.4800e-003	7.4800e-003	0.0000	24.0282	24.0282	7.7700e-003	0.0000	24.2225
Paving	2.6500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1550**	**0.1758**	**2.7000e-004**		**8.1300e-003**	**8.1300e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**24.0282**	**24.0282**	**7.7700e-003**	**0.0000**	**24.2225**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	5.2000e-004	5.6700e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.5999	1.5999	4.0000e-005	0.0000	1.6009
Total	**7.7000e-004**	**5.2000e-004**	**5.6700e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**1.9900e-003**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5999**	**1.5999**	**4.0000e-005**	**0.0000**	**1.6009**

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	0.0151	0.1550	0.1758	2.7000e-004		8.1300e-003	8.1300e-003		7.4800e-003	7.4800e-003	0.0000	24.0282	24.0282	7.7700e-003	0.0000	24.2224
Paving	2.6500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1550**	**0.1758**	**2.7000e-004**		**8.1300e-003**	**8.1300e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**24.0282**	**24.0282**	**7.7700e-003**	**0.0000**	**24.2224**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	5.2000e-004	5.6700e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8400e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5999	1.5999	4.0000e-005	0.0000	1.6009
Total	**7.7000e-004**	**5.2000e-004**	**5.6700e-003**	**2.0000e-005**	**1.8200e-003**	**1.0000e-005**	**1.8400e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5999**	**1.5999**	**4.0000e-005**	**0.0000**	**1.6009**

3.10 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9000e-004	6.8700e-003	8.1800e-003	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.1490	1.1490	8.0000e-005	0.0000	1.1509
Total	**0.0745**	**6.8700e-003**	**8.1800e-003**	**1.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.1490**	**1.1490**	**8.0000e-005**	**0.0000**	**1.1509**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.4000e-004	4.8200e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3599	1.3599	3.0000e-005	0.0000	1.3607
Total	**6.6000e-004**	**4.4000e-004**	**4.8200e-003**	**2.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.6900e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3599**	**1.3599**	**3.0000e-005**	**0.0000**	**1.3607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9000e-004	6.8700e-003	8.1800e-003	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.1490	1.1490	8.0000e-005	0.0000	1.1509
Total	**0.0745**	**6.8700e-003**	**8.1800e-003**	**1.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.1490**	**1.1490**	**8.0000e-005**	**0.0000**	**1.1509**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.4000e-004	4.8200e-003	2.0000e-005	1.5500e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3599	1.3599	3.0000e-005	0.0000	1.3607
Total	**6.6000e-004**	**4.4000e-004**	**4.8200e-003**	**2.0000e-005**	**1.5500e-003**	**1.0000e-005**	**1.5600e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3599**	**1.3599**	**3.0000e-005**	**0.0000**	**1.3607**

3.10 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1225					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.1241**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0200e-003	6.6000e-004	7.3900e-003	2.0000e-005	2.8000e-003	2.0000e-005	2.8200e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.1839	2.1839	5.0000e-005	0.0000	2.1850
Total	**1.0200e-003**	**6.6000e-004**	**7.3900e-003**	**2.0000e-005**	**2.8000e-003**	**2.0000e-005**	**2.8200e-003**	**7.4000e-004**	**2.0000e-005**	**7.6000e-004**	**0.0000**	**2.1839**	**2.1839**	**5.0000e-005**	**0.0000**	**2.1850**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1225					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.1241**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0200e-003	6.6000e-004	7.3900e-003	2.0000e-005	2.5800e-003	2.0000e-005	2.6000e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.1839	2.1839	5.0000e-005	0.0000	2.1850
Total	**1.0200e-003**	**6.6000e-004**	**7.3900e-003**	**2.0000e-005**	**2.5800e-003**	**2.0000e-005**	**2.6000e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.1839**	**2.1839**	**5.0000e-005**	**0.0000**	**2.1850**

3.11 Finishing and Landscaping - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0100e-003	8.8800e-003	0.0163	3.0000e-005		4.3000e-004	4.3000e-004		4.0000e-004	4.0000e-004	0.0000	2.2680	2.2680	7.3000e-004	0.0000	2.2864
Total	**1.0100e-003**	**8.8800e-003**	**0.0163**	**3.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**2.2680**	**2.2680**	**7.3000e-004**	**0.0000**	**2.2864**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1285	0.1285	0.0000	0.0000	0.1285
Total	**6.0000e-005**	**4.0000e-005**	**4.3000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1285**	**0.1285**	**0.0000**	**0.0000**	**0.1285**

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	1.0100e-003	8.8800e-003	0.0163	3.0000e-005		4.3000e-004	4.3000e-004		4.0000e-004	4.0000e-004	0.0000	2.2680	2.2680	7.3000e-004	0.0000	2.2864
Total	**1.0100e-003**	**8.8800e-003**	**0.0163**	**3.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**2.2680**	**2.2680**	**7.3000e-004**	**0.0000**	**2.2864**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1285	0.1285	0.0000	0.0000	0.1285
Total	**6.0000e-005**	**4.0000e-005**	**4.3000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1285**	**0.1285**	**0.0000**	**0.0000**	**0.1285**

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

Moreno Valley Elmentary School Mitigated Construction Run

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	82.00	1000sqft	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,455.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see assump file

Construction Phase - caleemod default schedule normalized over duration from applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no additional equipment required for Demo Haul

Off-road Equipment - assuming one excavator for finishing

Off-road Equipment -

Off-road Equipment - no additional equipment required for Grading Soil Haul

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - assuming 1 excavator for trenching phase

Trips and VMT - assuming 2 VT/water truck/day, see assump file for hauling trips

Demolition -

Grading -

Architectural Coating - Rule 1113, adjusted to account for only parking area

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186, MM: water 3x daily

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	19,653.00	2,586.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	267.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	12.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	239,460.00	239,455.00
tblLandUse	LotAcreage	1.88	1.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblTripsAndVMT	HaulingTripNumber	19.00	20.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	2,000.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

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					
2020	4.1736	46.3690	25.0450	0.0953	18.2803	2.1998	20.4801	9.9877	2.0239	12.0116	0.0000	9,824.1964	9,824.1964	1.3385	0.0000	9,857.6597
2021	16.7158	24.0968	24.0405	0.0627	2.3516	0.9817	3.3333	0.6334	0.9230	1.5564	0.0000	6,215.5173	6,215.5173	0.7907	0.0000	6,235.2837
2022	16.6910	1.7843	3.3574	6.4700e-003	0.3800	0.0861	0.4639	0.1008	0.0837	0.1845	0.0000	630.2357	630.2357	0.1624	0.0000	630.8876
Maximum	**16.7158**	**46.3690**	**25.0450**	**0.0953**	**18.2803**	**2.1998**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**9,824.1964**	**9,824.1964**	**1.3385**	**0.0000**	**9,857.6597**

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					
2020	4.1736	46.3690	25.0450	0.0953	6.8910	2.1998	9.0908	3.7323	2.0239	5.7562	0.0000	9,824.1964	9,824.1964	1.3385	0.0000	9,857.6597

2021	16.7158	24.0968	24.0405	0.0627	2.1737	0.9817	3.1554	0.5897	0.9230	1.5127	0.0000	6,215.5173	6,215.5173	0.7907	0.0000	6,235.2837
2022	16.6910	1.7843	3.3574	6.4700e-003	0.3503	0.0861	0.4342	0.0935	0.0837	0.1772	0.0000	630.2357	630.2357	0.1624	0.0000	630.8876
Maximum	**16.7158**	**46.3690**	**25.0450**	**0.0953**	**6.8910**	**2.1998**	**9.0908**	**3.7323**	**2.0239**	**5.7562**	**0.0000**	**9,824.1964**	**9,824.1964**	**1.3385**	**0.0000**	**9,857.6597**

	ROG	NOx	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**	**55.19**	**0.00**	**47.77**	**58.82**	**0.00**	**45.86**	**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	Demolition	Demolition	8/1/2020	9/3/2020	5	24	a
2	Demolition Haul	Demolition	8/1/2020	9/3/2020	5	24	b
3	Site Preparation	Site Preparation	9/4/2020	9/21/2020	5	12	c
4	Grading	Grading	9/22/2020	10/23/2020	5	24	d
5	Grading Haul	Grading	9/22/2020	10/23/2020	5	24	e
6	Utilities Trenching	Trenching	10/25/2020	11/6/2020	5	10	f
7	Building Construction	Building Construction	11/9/2020	11/16/2021	5	267	g
8	Paving	Paving	11/17/2021	12/20/2021	5	24	h
9	Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	5	24	i
10	Finishing and Landscaping	Trenching	1/24/2022	2/4/2022	5	10	j

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 7.52

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 123,000; Non-Residential Outdoor: 41,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Excavators	0	8.00	158	0.38
Demolition Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading Haul	Excavators	0	8.00	158	0.38
Grading Haul	Graders	0	8.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Utilities Trenching	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Finishing and Landscaping	Excavators	1	8.00	158	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

Demolition	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition Haul	0	0.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	67.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Finishing and Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0128	1.1700e-003	0.0140	3.6900e-003	1.1200e-003	4.8100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1805**	**2.1900e-003**	**0.1827**	**0.0482**	**2.0500e-003**	**0.0502**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0120	1.1700e-003	0.0132	3.4900e-003	1.1200e-003	4.6100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1665**	**2.1900e-003**	**0.1687**	**0.0447**	**2.0500e-003**	**0.0468**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

3.3 Demolition Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1732	0.0000	0.1732	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	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**	**0.1732**	**0.0000**	**0.1732**	**0.0262**	**0.0000**	**0.0262**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.2900e-003	0.1973	0.0244	6.3000e-004	0.0146	6.3000e-004	0.0152	4.0000e-003	6.0000e-004	4.6000e-003		67.3139	67.3139	4.0100e-003		67.4142
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.2900e-003**	**0.1973**	**0.0244**	**6.3000e-004**	**0.0146**	**6.3000e-004**	**0.0152**	**4.0000e-003**	**6.0000e-004**	**4.6000e-003**		**67.3139**	**67.3139**	**4.0100e-003**		**67.4142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0642	0.0000	0.0642	9.7100e-003	0.0000	9.7100e-003			0.0000			0.0000
Off-Road	0.0000	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**	**0.0642**	**0.0000**	**0.0642**	**9.7100e-003**	**0.0000**	**9.7100e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.2900e-003	0.1973	0.0244	6.3000e-004	0.0136	6.3000e-004	0.0142	3.7500e-003	6.0000e-004	4.3500e-003		67.3139	67.3139	4.0100e-003		67.4142
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Total	**4.2900e-003**	**0.1973**	**0.0244**	**6.3000e-004**	**0.0136**	**6.3000e-004**	**0.0142**	**3.7500e-003**	**6.0000e-004**	**4.3500e-003**		**67.3139**	**67.3139**	**4.0100e-003**		**67.4142**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0128	1.1700e-003	0.0140	3.6900e-003	1.1200e-003	4.8100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141
Total	**0.0972**	**0.2600**	**0.7634**	**2.5100e-003**	**0.2140**	**2.3900e-003**	**0.2164**	**0.0571**	**2.2400e-003**	**0.0593**		**253.3652**	**253.3652**	**9.2100e-003**		**253.5955**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6936	0.0000	6.6936	3.6793	0.0000	3.6793			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**6.6936**	**2.1974**	**8.8910**	**3.6793**	**2.0216**	**5.7009**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0120	1.1700e-003	0.0132	3.4900e-003	1.1200e-003	4.6100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0916	0.0542	0.7258	1.9900e-003	0.1855	1.2200e-003	0.1867	0.0495	1.1200e-003	0.0506		198.2870	198.2870	5.0800e-003		198.4141
Total	**0.0972**	**0.2600**	**0.7634**	**2.5100e-003**	**0.1975**	**2.3900e-003**	**0.1998**	**0.0530**	**2.2400e-003**	**0.0552**		**253.3652**	**253.3652**	**9.2100e-003**		**253.5955**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0128	1.1700e-003	0.0140	3.6900e-003	1.1200e-003	4.8100e-003		55.0782	55.0782	4.1300e-003		55.1815

Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1805**	**2.1900e-003**	**0.1827**	**0.0482**	**2.0500e-003**	**0.0502**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4276	0.0000	2.4276	1.2477	0.0000	1.2477			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.4276**	**1.2734**	**3.7011**	**1.2477**	**1.1716**	**2.4192**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.5700e-003	0.2058	0.0377	5.2000e-004	0.0120	1.1700e-003	0.0132	3.4900e-003	1.1200e-003	4.6100e-003		55.0782	55.0782	4.1300e-003		55.1815
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.0819**	**0.2509**	**0.6425**	**2.1800e-003**	**0.1665**	**2.1900e-003**	**0.1687**	**0.0447**	**2.0500e-003**	**0.0468**		**220.3174**	**220.3174**	**8.3700e-003**		**220.5265**

3.6 Grading Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0528	0.0000	0.0528	7.9900e-003	0.0000	7.9900e-003			0.0000			0.0000

Off-Road	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**	**0.0528**	**0.0000**	**0.0528**	**7.9900e-003**	**0.0000**	**7.9900e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4286	19.7322	2.4347	0.0635	1.4578	0.0629	1.5207	0.3996	0.0602	0.4598		6,731.3939	6,731.3939	0.4012		6,741.4226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4286**	**19.7322**	**2.4347**	**0.0635**	**1.4578**	**0.0629**	**1.5207**	**0.3996**	**0.0602**	**0.4598**		**6,731.3939**	**6,731.3939**	**0.4012**		**6,741.4226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0196	0.0000	0.0196	2.9600e-003	0.0000	2.9600e-003			0.0000			0.0000
Off-Road	0.0000	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**	**0.0196**	**0.0000**	**0.0196**	**2.9600e-003**	**0.0000**	**2.9600e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4286	19.7322	2.4347	0.0635	1.3587	0.0629	1.4215	0.3753	0.0602	0.4354		6,731.3939	6,731.3939	0.4012		6,741.4226

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4286**	**19.7322**	**2.4347**	**0.0635**	**1.3587**	**0.0629**	**1.4215**	**0.3753**	**0.0602**	**0.4354**		**6,731.3939**	**6,731.3939**	**0.4012**		**6,741.4226**

3.7 Utilities Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0153	9.0300e-003	0.1210	3.3000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		33.0478	33.0478	8.5000e-004		33.0690
Total	**0.0153**	**9.0300e-003**	**0.1210**	**3.3000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**33.0478**	**33.0478**	**8.5000e-004**		**33.0690**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621

Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0153	9.0300e-003	0.1210	3.3000e-004	0.0309	2.0000e-004	0.0311	8.2500e-003	1.9000e-004	8.4400e-003		33.0478	33.0478	8.5000e-004		33.0690
Total	**0.0153**	**9.0300e-003**	**0.1210**	**3.3000e-004**	**0.0309**	**2.0000e-004**	**0.0311**	**8.2500e-003**	**1.9000e-004**	**8.4400e-003**		**33.0478**	**33.0478**	**8.5000e-004**		**33.0690**

3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1867	6.8938	1.2612	0.0175	0.4290	0.0392	0.4683	0.1235	0.0375	0.1610		1,845.1192	1,845.1192	0.1384		1,848.5790
Worker	0.8753	0.5176	6.9353	0.0190	1.9226	0.0116	1.9342	0.5099	0.0107	0.5206		1,894.7426	1,894.7426	0.0486		1,895.9568
Total	**1.0620**	**7.4114**	**8.1965**	**0.0365**	**2.3516**	**0.0509**	**2.4025**	**0.6334**	**0.0482**	**0.6816**		**3,739.8618**	**3,739.8618**	**0.1870**		**3,744.5358**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1867	6.8938	1.2612	0.0175	0.4015	0.0392	0.4408	0.1168	0.0375	0.1543		1,845.1192	1,845.1192	0.1384		1,848.5790
Worker	0.8753	0.5176	6.9353	0.0190	1.7721	0.0116	1.7838	0.4730	0.0107	0.4837		1,894.7426	1,894.7426	0.0486		1,895.9568
Total	**1.0620**	**7.4114**	**8.1965**	**0.0365**	**2.1737**	**0.0509**	**2.2245**	**0.5897**	**0.0482**	**0.6380**		**3,739.8618**	**3,739.8618**	**0.1870**		**3,744.5358**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1564	6.2001	1.1062	0.0174	0.4290	0.0118	0.4408	0.1235	0.0113	0.1348		1,830.7819	1,830.7819	0.1310		1,834.0562
Worker	0.8154	0.4646	6.3590	0.0184	1.9226	0.0113	1.9339	0.5099	0.0104	0.5203		1,831.3716	1,831.3716	0.0437		1,832.4633
Total	**0.9719**	**6.6647**	**7.4653**	**0.0357**	**2.3516**	**0.0231**	**2.3747**	**0.6334**	**0.0217**	**0.6551**		**3,662.1534**	**3,662.1534**	**0.1746**		**3,666.5195**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1564	6.2001	1.1062	0.0174	0.4015	0.0118	0.4133	0.1168	0.0113	0.1281		1,830.7819	1,830.7819	0.1310		1,834.0562
Worker	0.8154	0.4646	6.3590	0.0184	1.7721	0.0113	1.7835	0.4730	0.0104	0.4834		1,831.3716	1,831.3716	0.0437		1,832.4633
Total	**0.9719**	**6.6647**	**7.4653**	**0.0357**	**2.1737**	**0.0231**	**2.1968**	**0.5897**	**0.0217**	**0.6114**		**3,662.1534**	**3,662.1534**	**0.1746**		**3,666.5195**

3.9 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1546**	**9.9000e-004**	**0.1555**	**0.0413**	**9.1000e-004**	**0.0422**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.10 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1612	0.0918	1.2570	3.6300e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		362.0153	362.0153	8.6300e-003		362.2311
Total	**0.1612**	**0.0918**	**1.2570**	**3.6300e-003**	**0.3800**	**2.2400e-003**	**0.3823**	**0.1008**	**2.0600e-003**	**0.1029**		**362.0153**	**362.0153**	**8.6300e-003**		**362.2311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1612	0.0918	1.2570	3.6300e-003	0.3503	2.2400e-003	0.3525	0.0935	2.0600e-003	0.0956		362.0153	362.0153	8.6300e-003		362.2311
Total	**0.1612**	**0.0918**	**1.2570**	**3.6300e-003**	**0.3503**	**2.2400e-003**	**0.3525**	**0.0935**	**2.0600e-003**	**0.0956**		**362.0153**	**362.0153**	**8.6300e-003**		**362.2311**

3.10 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.0826	1.1594	3.5000e-003	0.3800	2.1800e-003	0.3822	0.1008	2.0100e-003	0.1028		348.7877	348.7877	7.7500e-003		348.9815
Total	**0.1508**	**0.0826**	**1.1594**	**3.5000e-003**	**0.3800**	**2.1800e-003**	**0.3822**	**0.1008**	**2.0100e-003**	**0.1028**		**348.7877**	**348.7877**	**7.7500e-003**		**348.9815**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1508	0.0826	1.1594	3.5000e-003	0.3503	2.1800e-003	0.3525	0.0935	2.0100e-003	0.0955		348.7877	348.7877	7.7500e-003		348.9815
Total	**0.1508**	**0.0826**	**1.1594**	**3.5000e-003**	**0.3503**	**2.1800e-003**	**0.3525**	**0.0935**	**2.0100e-003**	**0.0955**		**348.7877**	**348.7877**	**7.7500e-003**		**348.9815**

3.11 Finishing and Landscaping - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790		500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**		**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0133	7.2900e-003	0.1023	3.1000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		30.7754	30.7754	6.8000e-004		30.7925
Total	**0.0133**	**7.2900e-003**	**0.1023**	**3.1000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**30.7754**	**30.7754**	**6.8000e-004**		**30.7925**

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	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790	0.0000	500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**	**0.0000**	**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0133	7.2900e-003	0.1023	3.1000e-004	0.0309	1.9000e-004	0.0311	8.2500e-003	1.8000e-004	8.4300e-003		30.7754	30.7754	6.8000e-004		30.7925
Total	**0.0133**	**7.2900e-003**	**0.1023**	**3.1000e-004**	**0.0309**	**1.9000e-004**	**0.0311**	**8.2500e-003**	**1.8000e-004**	**8.4300e-003**		**30.7754**	**30.7754**	**6.8000e-004**		**30.7925**

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

Moreno Valley Elmentary School Mitigated Construction Run - Riverside-South Coast County, Winter

Moreno Valley Elmentary School Mitigated Construction Run

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	82.00	1000sqft	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,455.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see assump file

Construction Phase - caleemod default schedule normalized over duration from applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no additional equipment required for Demo Haul

Off-road Equipment - assuming one excavator for finishing

Off-road Equipment -

Off-road Equipment - no additional equipment required for Grading Soil Haul

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - assuming 1 excavator for trenching phase

Trips and VMT - assuming 2 VT/water truck/day, see assump file for hauling trips

Demolition -

Grading -

Architectural Coating - Rule 1113, adjusted to account for only parking area

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186, MM: water 3x daily

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	19,653.00	2,586.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	267.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	12.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	239,460.00	239,455.00
tblLandUse	LotAcreage	1.88	1.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblTripsAndVMT	HaulingTripNumber	19.00	20.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	2,000.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

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					
2020	4.1721	46.5420	23.9354	0.0935	18.2803	2.1998	20.4801	9.9877	2.0239	12.0116	0.0000	9,636.7109	9,636.7109	1.3764	0.0000	9,671.1205
2021	16.7128	24.0593	23.0168	0.0601	2.3516	0.9821	3.3337	0.6334	0.9233	1.5567	0.0000	5,958.2174	5,958.2174	0.7999	0.0000	5,978.2153
2022	16.6886	1.7845	3.3376	6.1100e-003	0.3800	0.0861	0.4639	0.1008	0.0837	0.1845	0.0000	594.3633	594.3633	0.1623	0.0000	594.9901
Maximum	**16.7128**	**46.5420**	**23.9354**	**0.0935**	**18.2803**	**2.1998**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**9,636.7109**	**9,636.7109**	**1.3764**	**0.0000**	**9,671.1205**

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					
2020	4.1721	46.5420	23.9354	0.0935	6.8910	2.1998	9.0908	3.7323	2.0239	5.7562	0.0000	9,636.7109	9,636.7109	1.3764	0.0000	9,671.1205

2021	16.7128	24.0593	23.0168	0.0601	2.1737	0.9821	3.1558	0.5897	0.9233	1.5131	0.0000	5,958.2174	5,958.2174	0.7999	0.0000	5,978.2153
2022	16.6886	1.7845	3.3376	6.1100e-003	0.3503	0.0861	0.4342	0.0935	0.0837	0.1772	0.0000	594.3633	594.3633	0.1623	0.0000	594.9901
Maximum	**16.7128**	**46.5420**	**23.9354**	**0.0935**	**6.8910**	**2.1998**	**9.0908**	**3.7323**	**2.0239**	**5.7562**	**0.0000**	**9,636.7109**	**9,636.7109**	**1.3764**	**0.0000**	**9,671.1205**

	ROG	NOx	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**	**55.19**	**0.00**	**47.77**	**58.82**	**0.00**	**45.86**	**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	Demolition	Demolition	8/1/2020	9/3/2020	5	24	a
2	Demolition Haul	Demolition	8/1/2020	9/3/2020	5	24	b
3	Site Preparation	Site Preparation	9/4/2020	9/21/2020	5	12	c
4	Grading	Grading	9/22/2020	10/23/2020	5	24	d
5	Grading Haul	Grading	9/22/2020	10/23/2020	5	24	e
6	Utilities Trenching	Trenching	10/25/2020	11/6/2020	5	10	f
7	Building Construction	Building Construction	11/9/2020	11/16/2021	5	267	g
8	Paving	Paving	11/17/2021	12/20/2021	5	24	h
9	Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	5	24	i
10	Finishing and Landscaping	Trenching	1/24/2022	2/4/2022	5	10	j

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 7.52

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 123,000; Non-Residential Outdoor: 41,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73

Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Excavators	0	8.00	158	0.38
Demolition Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading Haul	Excavators	0	8.00	158	0.38
Grading Haul	Graders	0	8.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Utilities Trenching	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Finishing and Landscaping	Excavators	1	8.00	158	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
Demolition	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Demolition Haul	0	0.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	67.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Finishing and Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0128	1.1800e-003	0.0140	3.6900e-003	1.1300e-003	4.8200e-003		53.0086	53.0086	4.6000e-003		53.1235

Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1805**	**2.2000e-003**	**0.1827**	**0.0482**	**2.0600e-003**	**0.0502**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0120	1.1800e-003	0.0132	3.4900e-003	1.1300e-003	4.6200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1665**	**2.2000e-003**	**0.1687**	**0.0447**	**2.0600e-003**	**0.0468**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

3.3 Demolition Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1732	0.0000	0.1732	0.0262	0.0000	0.0262			0.0000			0.0000
Off-Road	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**	**0.1732**	**0.0000**	**0.1732**	**0.0262**	**0.0000**	**0.0262**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.5100e-003	0.1991	0.0285	6.2000e-004	0.0146	6.4000e-004	0.0152	4.0000e-003	6.1000e-004	4.6100e-003		65.6298	65.6298	4.3900e-003		65.7396
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.5100e-003**	**0.1991**	**0.0285**	**6.2000e-004**	**0.0146**	**6.4000e-004**	**0.0152**	**4.0000e-003**	**6.1000e-004**	**4.6100e-003**		**65.6298**	**65.6298**	**4.3900e-003**		**65.7396**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0642	0.0000	0.0642	9.7100e-003	0.0000	9.7100e-003			0.0000			0.0000
Off-Road	0.0000	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**	**0.0642**	**0.0000**	**0.0642**	**9.7100e-003**	**0.0000**	**9.7100e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	4.5100e-003	0.1991	0.0285	6.2000e-004	0.0136	6.4000e-004	0.0142	3.7500e-003	6.1000e-004	4.3600e-003		65.6298	65.6298	4.3900e-003		65.7396
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**4.5100e-003**	**0.1991**	**0.0285**	**6.2000e-004**	**0.0136**	**6.4000e-004**	**0.0142**	**3.7500e-003**	**6.1000e-004**	**4.3600e-003**		**65.6298**	**65.6298**	**4.3900e-003**		**65.7396**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0128	1.1800e-003	0.0140	3.6900e-003	1.1300e-003	4.8200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929
Total	**0.0956**	**0.2608**	**0.6312**	**2.2900e-003**	**0.2140**	**2.4000e-003**	**0.2164**	**0.0571**	**2.2500e-003**	**0.0593**		**230.8910**	**230.8910**	**9.0200e-003**		**231.1164**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6936	0.0000	6.6936	3.6793	0.0000	3.6793			0.0000			0.0000

Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**6.6936**	**2.1974**	**8.8910**	**3.6793**	**2.0216**	**5.7009**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0120	1.1800e-003	0.0132	3.4900e-003	1.1300e-003	4.6200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0897	0.0560	0.5871	1.7900e-003	0.1855	1.2200e-003	0.1867	0.0495	1.1200e-003	0.0506		177.8824	177.8824	4.4200e-003		177.9929
Total	**0.0956**	**0.2608**	**0.6312**	**2.2900e-003**	**0.1975**	**2.4000e-003**	**0.1998**	**0.0530**	**2.2500e-003**	**0.0552**		**230.8910**	**230.8910**	**9.0200e-003**		**231.1164**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0128	1.1800e-003	0.0140	3.6900e-003	1.1300e-003	4.8200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1805**	**2.2000e-003**	**0.1827**	**0.0482**	**2.0600e-003**	**0.0502**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4276	0.0000	2.4276	1.2477	0.0000	1.2477			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.4276**	**1.2734**	**3.7011**	**1.2477**	**1.1716**	**2.4192**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	5.8800e-003	0.2047	0.0441	5.0000e-004	0.0120	1.1800e-003	0.0132	3.4900e-003	1.1300e-003	4.6200e-003		53.0086	53.0086	4.6000e-003		53.1235
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1546	1.0200e-003	0.1556	0.0413	9.3000e-004	0.0422		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.0806**	**0.2514**	**0.5333**	**1.9900e-003**	**0.1665**	**2.2000e-003**	**0.1687**	**0.0447**	**2.0600e-003**	**0.0468**		**201.2439**	**201.2439**	**8.2800e-003**		**201.4509**

3.6 Grading Haul - 2020

Unmitigated Construction On-Site

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

Fugitive Dust					0.0528	0.0000	0.0528	7.9900e-003	0.0000	7.9900e-003			0.0000			0.0000
Off-Road	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**	**0.0528**	**0.0000**	**0.0528**	**7.9900e-003**	**0.0000**	**7.9900e-003**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4508	19.9047	2.8515	0.0619	1.4578	0.0638	1.5216	0.3996	0.0610	0.4606		6,562.9818	6,562.9818	0.4391		6,573.9590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4508**	**19.9047**	**2.8515**	**0.0619**	**1.4578**	**0.0638**	**1.5216**	**0.3996**	**0.0610**	**0.4606**		**6,562.9818**	**6,562.9818**	**0.4391**		**6,573.9590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0196	0.0000	0.0196	2.9600e-003	0.0000	2.9600e-003			0.0000			0.0000
Off-Road	0.0000	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**	**0.0196**	**0.0000**	**0.0196**	**2.9600e-003**	**0.0000**	**2.9600e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

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	0.4508	19.9047	2.8515	0.0619	1.3587	0.0638	1.4224	0.3753	0.0610	0.4363		6,562.9818	6,562.9818	0.4391		6,573.9590
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4508**	**19.9047**	**2.8515**	**0.0619**	**1.3587**	**0.0638**	**1.4224**	**0.3753**	**0.0610**	**0.4363**		**6,562.9818**	**6,562.9818**	**0.4391**		**6,573.9590**

3.7 Utilities Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	9.3400e-003	0.0979	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		29.6471	29.6471	7.4000e-004		29.6655
Total	**0.0150**	**9.3400e-003**	**0.0979**	**3.0000e-004**	**0.0335**	**2.0000e-004**	**0.0337**	**8.8900e-003**	**1.9000e-004**	**9.0800e-003**		**29.6471**	**29.6471**	**7.4000e-004**		**29.6655**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621

Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0150	9.3400e-003	0.0979	3.0000e-004	0.0309	2.0000e-004	0.0311	8.2500e-003	1.9000e-004	8.4400e-003		29.6471	29.6471	7.4000e-004		29.6655
Total	**0.0150**	**9.3400e-003**	**0.0979**	**3.0000e-004**	**0.0309**	**2.0000e-004**	**0.0311**	**8.2500e-003**	**1.9000e-004**	**8.4400e-003**		**29.6471**	**29.6471**	**7.4000e-004**		**29.6655**

3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1970	6.8576	1.4767	0.0169	0.4290	0.0397	0.4687	0.1235	0.0380	0.1615		1,775.7865	1,775.7865	0.1540		1,779.6365
Worker	0.8572	0.5355	5.6102	0.0171	1.9226	0.0116	1.9342	0.5099	0.0107	0.5206		1,699.7656	1,699.7656	0.0422		1,700.8210
Total	**1.0541**	**7.3931**	**7.0869**	**0.0339**	**2.3516**	**0.0513**	**2.4029**	**0.6334**	**0.0487**	**0.6821**		**3,475.5521**	**3,475.5521**	**0.1962**		**3,480.4576**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	0.1970	6.8576	1.4767	0.0169	0.4015	0.0397	0.4412	0.1168	0.0380	0.1547		1,775.7865	1,775.7865	0.1540		1,779.6365
Worker	0.8572	0.5355	5.6102	0.0171	1.7721	0.0116	1.7838	0.4730	0.0107	0.4837		1,699.7656	1,699.7656	0.0422		1,700.8210
Total	**1.0541**	**7.3931**	**7.0869**	**0.0339**	**2.1737**	**0.0513**	**2.2250**	**0.5897**	**0.0487**	**0.6384**		**3,475.5521**	**3,475.5521**	**0.1962**		**3,480.4576**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1661	6.1467	1.3086	0.0167	0.4290	0.0122	0.4412	0.1235	0.0116	0.1351		1,761.9206	1,761.9206	0.1459		1,765.5690
Worker	0.8002	0.4804	5.1330	0.0165	1.9226	0.0113	1.9339	0.5099	0.0104	0.5203		1,642.9329	1,642.9329	0.0380		1,643.8820
Total	**0.9664**	**6.6272**	**6.4416**	**0.0332**	**2.3516**	**0.0235**	**2.3751**	**0.6334**	**0.0221**	**0.6554**		**3,404.8535**	**3,404.8535**	**0.1839**		**3,409.4511**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

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	0.1661	6.1467	1.3086	0.0167	0.4015	0.0122	0.4137	0.1168	0.0116	0.1284		1,761.9206	1,761.9206	0.1459		1,765.5690
Worker	0.8002	0.4804	5.1330	0.0165	1.7721	0.0113	1.7835	0.4730	0.0104	0.4834		1,642.9329	1,642.9329	0.0380		1,643.8820
Total	**0.9664**	**6.6272**	**6.4416**	**0.0332**	**2.1737**	**0.0235**	**2.1971**	**0.5897**	**0.0221**	**0.6118**		**3,404.8535**	**3,404.8535**	**0.1839**		**3,409.4511**

3.9 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.2205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4761**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1546	9.9000e-004	0.1555	0.0413	9.1000e-004	0.0422		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1546**	**9.9000e-004**	**0.1555**	**0.0413**	**9.1000e-004**	**0.0422**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.10 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1582	0.0950	1.0147	3.2600e-003	0.3800	2.2400e-003	0.3823	0.1008	2.0600e-003	0.1029		324.7658	324.7658	7.5000e-003		324.9534
Total	**0.1582**	**0.0950**	**1.0147**	**3.2600e-003**	**0.3800**	**2.2400e-003**	**0.3823**	**0.1008**	**2.0600e-003**	**0.1029**		**324.7658**	**324.7658**	**7.5000e-003**		**324.9534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**16.5546**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1582	0.0950	1.0147	3.2600e-003	0.3503	2.2400e-003	0.3525	0.0935	2.0600e-003	0.0956		324.7658	324.7658	7.5000e-003		324.9534
Total	**0.1582**	**0.0950**	**1.0147**	**3.2600e-003**	**0.3503**	**2.2400e-003**	**0.3525**	**0.0935**	**2.0600e-003**	**0.0956**		**324.7658**	**324.7658**	**7.5000e-003**		**324.9534**

3.10 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1484	0.0854	0.9345	3.1400e-003	0.3800	2.1800e-003	0.3822	0.1008	2.0100e-003	0.1028		312.9152	312.9152	6.7500e-003		313.0839
Total	**0.1484**	**0.0854**	**0.9345**	**3.1400e-003**	**0.3800**	**2.1800e-003**	**0.3822**	**0.1008**	**2.0100e-003**	**0.1028**		**312.9152**	**312.9152**	**6.7500e-003**		**313.0839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.3357					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**16.5402**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1484	0.0854	0.9345	3.1400e-003	0.3503	2.1800e-003	0.3525	0.0935	2.0100e-003	0.0955		312.9152	312.9152	6.7500e-003		313.0839
Total	**0.1484**	**0.0854**	**0.9345**	**3.1400e-003**	**0.3503**	**2.1800e-003**	**0.3525**	**0.0935**	**2.0100e-003**	**0.0955**		**312.9152**	**312.9152**	**6.7500e-003**		**313.0839**

3.11 Finishing and Landscaping - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790		500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**		**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0131	7.5400e-003	0.0825	2.8000e-004	0.0335	1.9000e-004	0.0337	8.8900e-003	1.8000e-004	9.0700e-003		27.6102	27.6102	6.0000e-004		27.6251
Total	**0.0131**	**7.5400e-003**	**0.0825**	**2.8000e-004**	**0.0335**	**1.9000e-004**	**0.0337**	**8.8900e-003**	**1.8000e-004**	**9.0700e-003**		**27.6102**	**27.6102**	**6.0000e-004**		**27.6251**

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	0.2024	1.7770	3.2551	5.1700e-003		0.0859	0.0859		0.0790	0.0790	0.0000	500.0153	500.0153	0.1617		504.0582
Total	**0.2024**	**1.7770**	**3.2551**	**5.1700e-003**		**0.0859**	**0.0859**		**0.0790**	**0.0790**	**0.0000**	**500.0153**	**500.0153**	**0.1617**		**504.0582**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0131	7.5400e-003	0.0825	2.8000e-004	0.0309	1.9000e-004	0.0311	8.2500e-003	1.8000e-004	8.4300e-003		27.6102	27.6102	6.0000e-004		27.6251
Total	**0.0131**	**7.5400e-003**	**0.0825**	**2.8000e-004**	**0.0309**	**1.9000e-004**	**0.0311**	**8.2500e-003**	**1.8000e-004**	**8.4300e-003**		**27.6102**	**27.6102**	**6.0000e-004**		**27.6251**

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

Moreno Valley Elmentary School Mitigated Construction Run - Riverside-South Coast County, Annual

Moreno Valley Elmentary School Mitigated Construction Run

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	82.00	1000sqft	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,455.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - see assump file

Construction Phase - caleemod default schedule normalized over duration from applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no additional equipment required for Demo Haul

Off-road Equipment - assuming one excavator for finishing

Off-road Equipment -

Off-road Equipment - no additional equipment required for Grading Soil Haul

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - assuming 1 excavator for trenching phase

Trips and VMT - assuming 2 VT/water truck/day, see assump file for hauling trips

Demolition -

Grading -

Architectural Coating - Rule 1113, adjusted to account for only parking area

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186, MM: water 3x daily

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	19,653.00	2,586.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	230.00	267.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	20.00	24.00
tblConstructionPhase	NumDays	10.00	12.00
tblGrading	MaterialImported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	239,460.00	239,455.00
tblLandUse	LotAcreage	1.88	1.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblTripsAndVMT	HaulingTripNumber	19.00	20.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	2,000.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

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					
2020	0.1627	1.7551	1.1191	3.1000e-003	0.2580	0.0726	0.3305	0.1189	0.0675	0.1863	0.0000	281.6795	281.6795	0.0480	0.0000	282.8802
2021	0.4126	2.9190	2.8384	7.2600e-003	0.2674	0.1205	0.3879	0.0721	0.1132	0.1853	0.0000	652.8352	652.8352	0.0899	0.0000	655.0828
2022	0.1262	0.0202	0.0377	7.0000e-005	2.9700e-003	1.0600e-003	4.0300e-003	7.9000e-004	1.0200e-003	1.8100e-003	0.0000	6.4953	6.4953	9.1000e-004	0.0000	6.5180
Maximum	**0.4126**	**2.9190**	**2.8384**	**7.2600e-003**	**0.2674**	**0.1205**	**0.3879**	**0.1189**	**0.1132**	**0.1863**	**0.0000**	**652.8352**	**652.8352**	**0.0899**	**0.0000**	**655.0828**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1627	1.7551	1.1191	3.1000e-003	0.1335	0.0726	0.2061	0.0544	0.0675	0.1219	0.0000	281.6793	281.6793	0.0480	0.0000	282.8801

2021	0.4126	2.9190	2.8384	7.2600e-003	0.2472	0.1205	0.3678	0.0672	0.1132	0.1803	0.0000	652.8349	652.8349	0.0899	0.0000	655.0824
2022	0.1262	0.0202	0.0377	7.0000e-005	2.7400e-003	1.0600e-003	3.8000e-003	7.3000e-004	1.0200e-003	1.7600e-003	0.0000	6.4953	6.4953	9.1000e-004	0.0000	6.5180
Maximum	**0.4126**	**2.9190**	**2.8384**	**7.2600e-003**	**0.2472**	**0.1205**	**0.3678**	**0.0672**	**0.1132**	**0.1803**	**0.0000**	**652.8349**	**652.8349**	**0.0899**	**0.0000**	**655.0824**

	ROG	NOx	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**	**27.42**	**0.00**	**20.05**	**36.21**	**0.00**	**18.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-1-2020**	**10-31-2020**	1.5573	1.5573
2	**11-1-2020**	**1-31-2021**	0.8670	0.8670
3	**2-1-2021**	**4-30-2021**	0.8563	0.8563
4	**5-1-2021**	**7-31-2021**	0.8861	0.8861
5	**8-1-2021**	**10-31-2021**	0.8857	0.8857
6	**11-1-2021**	**1-31-2022**	0.5571	0.5571
7	**2-1-2022**	**4-30-2022**	0.0029	0.0029
		Highest	1.5573	1.5573

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	8/1/2020	9/3/2020	5	24	a
2	Demolition Haul	Demolition	8/1/2020	9/3/2020	5	24	b
3	Site Preparation	Site Preparation	9/4/2020	9/21/2020	5	12	c
4	Grading	Grading	9/22/2020	10/23/2020	5	24	d
5	Grading Haul	Grading	9/22/2020	10/23/2020	5	24	e
6	Utilities Trenching	Trenching	10/25/2020	11/6/2020	5	10	f
7	Building Construction	Building Construction	11/9/2020	11/16/2021	5	267	g
8	Paving	Paving	11/17/2021	12/20/2021	5	24	h
9	Architectural Coating	Architectural Coating	12/21/2021	1/23/2022	5	24	i

10	Finishing and Landscaping	Trenching	1/24/2022	2/4/2022	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 12

Acres of Paving: 7.52

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 123,000; Non-Residential Outdoor: 41,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition Haul	Excavators	0	8.00	158	0.38
Demolition Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading Haul	Excavators	0	8.00	158	0.38
Grading Haul	Graders	0	8.00	187	0.41
Grading Haul	Rubber Tired Dozers	0	8.00	247	0.40
Grading Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Utilities Trenching	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Finishing and Landscaping	Excavators	1	8.00	158	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
Demolition	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition Haul	0	0.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading Haul	0	0.00	0.00	2,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	172.00	67.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Finishing and Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

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

Off-Road	0.0398	0.3984	0.2610	4.7000e-004		0.0199	0.0199		0.0185	0.0185	0.0000	40.7983	40.7983	0.0115	0.0000	41.0863
Total	**0.0398**	**0.3984**	**0.2610**	**4.7000e-004**		**0.0199**	**0.0199**		**0.0185**	**0.0185**	**0.0000**	**40.7983**	**40.7983**	**0.0115**	**0.0000**	**41.0863**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.7000e-004	4.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**2.1300e-003**	**2.0000e-005**	**2.1600e-003**	**5.7000e-004**	**2.0000e-005**	**6.0000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

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	0.0398	0.3984	0.2610	4.7000e-004		0.0199	0.0199		0.0185	0.0185	0.0000	40.7983	40.7983	0.0115	0.0000	41.0862
Total	**0.0398**	**0.3984**	**0.2610**	**4.7000e-004**		**0.0199**	**0.0199**		**0.0185**	**0.0185**	**0.0000**	**40.7983**	**40.7983**	**0.0115**	**0.0000**	**41.0862**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8400e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**1.9600e-003**	**2.0000e-005**	**2.0000e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

3.3 Demolition Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0800e-003	0.0000	2.0800e-003	3.1000e-004	0.0000	3.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**2.0800e-003**	**0.0000**	**2.0800e-003**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.0000e-005	2.4200e-003	3.1000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7251	0.7251	5.0000e-005	0.0000	0.7262
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0000e-005**	**2.4200e-003**	**3.1000e-004**	**1.0000e-005**	**1.7000e-004**	**1.0000e-005**	**1.8000e-004**	**5.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.7251**	**0.7251**	**5.0000e-005**	**0.0000**	**0.7262**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.7000e-004	0.0000	7.7000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**7.7000e-004**	**0.0000**	**7.7000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.0000e-005	2.4200e-003	3.1000e-004	1.0000e-005	1.6000e-004	1.0000e-005	1.7000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.7251	0.7251	5.0000e-005	0.0000	0.7262
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0000e-005**	**2.4200e-003**	**3.1000e-004**	**1.0000e-005**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**4.0000e-005**	**1.0000e-005**	**5.0000e-005**	**0.0000**	**0.7251**	**0.7251**	**5.0000e-005**	**0.0000**	**0.7262**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1084	0.0000	0.1084	0.0596	0.0000	0.0596	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2545	0.1291	2.3000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	20.0584	20.0584	6.4900e-003	0.0000	20.2206
Total	**0.0245**	**0.2545**	**0.1291**	**2.3000e-004**	**0.1084**	**0.0132**	**0.1216**	**0.0596**	**0.0121**	**0.0717**	**0.0000**	**20.0584**	**20.0584**	**6.4900e-003**	**0.0000**	**20.2206**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.2500e-003	2.4000e-004	0.0000	8.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2951	0.2951	2.0000e-005	0.0000	0.2957
Worker	5.0000e-004	3.5000e-004	3.7100e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9932	0.9932	2.0000e-005	0.0000	0.9938
Total	**5.3000e-004**	**1.6000e-003**	**3.9500e-003**	**1.0000e-005**	**1.2700e-003**	**2.0000e-005**	**1.2700e-003**	**3.4000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**1.2882**	**1.2882**	**4.0000e-005**	**0.0000**	**1.2894**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0402	0.0000	0.0402	0.0221	0.0000	0.0221	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2545	0.1291	2.3000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	20.0584	20.0584	6.4900e-003	0.0000	20.2206
Total	**0.0245**	**0.2545**	**0.1291**	**2.3000e-004**	**0.0402**	**0.0132**	**0.0533**	**0.0221**	**0.0121**	**0.0342**	**0.0000**	**20.0584**	**20.0584**	**6.4900e-003**	**0.0000**	**20.2206**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.2500e-003	2.4000e-004	0.0000	7.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2951	0.2951	2.0000e-005	0.0000	0.2957
Worker	5.0000e-004	3.5000e-004	3.7100e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.1000e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9932	0.9932	2.0000e-005	0.0000	0.9938
Total	**5.3000e-004**	**1.6000e-003**	**3.9500e-003**	**1.0000e-005**	**1.1600e-003**	**2.0000e-005**	**1.1800e-003**	**3.1000e-004**	**2.0000e-005**	**3.3000e-004**	**0.0000**	**1.2882**	**1.2882**	**4.0000e-005**	**0.0000**	**1.2894**

3.5 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0786	0.0000	0.0786	0.0404	0.0000	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3166	0.1926	3.6000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	31.2705	31.2705	0.0101	0.0000	31.5233
Total	**0.0292**	**0.3166**	**0.1926**	**3.6000e-004**	**0.0786**	**0.0153**	**0.0939**	**0.0404**	**0.0141**	**0.0545**	**0.0000**	**31.2705**	**31.2705**	**0.0101**	**0.0000**	**31.5233**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.5000e-004	1.0000e-005	1.7000e-004	4.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**2.1300e-003**	**2.0000e-005**	**2.1600e-003**	**5.7000e-004**	**2.0000e-005**	**6.0000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0291	0.0000	0.0291	0.0150	0.0000	0.0150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0292	0.3166	0.1926	3.6000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	31.2705	31.2705	0.0101	0.0000	31.5233
Total	**0.0292**	**0.3166**	**0.1926**	**3.6000e-004**	**0.0291**	**0.0153**	**0.0444**	**0.0150**	**0.0141**	**0.0290**	**0.0000**	**31.2705**	**31.2705**	**0.0101**	**0.0000**	**31.5233**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.5000e-003	4.9000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5901	0.5901	5.0000e-005	0.0000	0.5913
Worker	8.3000e-004	5.8000e-004	6.1900e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8400e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6553	1.6553	4.0000e-005	0.0000	1.6563
Total	**9.0000e-004**	**3.0800e-003**	**6.6800e-003**	**3.0000e-005**	**1.9600e-003**	**2.0000e-005**	**2.0000e-003**	**5.3000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**2.2454**	**2.2454**	**9.0000e-005**	**0.0000**	**2.2476**

3.6 Grading Haul - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3000e-004	0.0000	6.3000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**6.3000e-004**	**0.0000**	**6.3000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.2600e-003	0.2425	0.0314	7.5000e-004	0.0172	7.6000e-004	0.0180	4.7300e-003	7.3000e-004	5.4600e-003	0.0000	72.5094	72.5094	4.5400e-003	0.0000	72.6230
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.2600e-003**	**0.2425**	**0.0314**	**7.5000e-004**	**0.0172**	**7.6000e-004**	**0.0180**	**4.7300e-003**	**7.3000e-004**	**5.4600e-003**	**0.0000**	**72.5094**	**72.5094**	**4.5400e-003**	**0.0000**	**72.6230**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3000e-004	0.0000	2.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	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**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	5.2600e-003	0.2425	0.0314	7.5000e-004	0.0161	7.6000e-004	0.0168	4.4500e-003	7.3000e-004	5.1700e-003	0.0000	72.5094	72.5094	4.5400e-003	0.0000	72.6230
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.2600e-003**	**0.2425**	**0.0314**	**7.5000e-004**	**0.0161**	**7.6000e-004**	**0.0168**	**4.4500e-003**	**7.3000e-004**	**5.1700e-003**	**0.0000**	**72.5094**	**72.5094**	**4.5400e-003**	**0.0000**	**72.6230**

3.7 Utilities Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2200e-003	0.0121	0.0163	3.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.2685	2.2685	7.3000e-004	0.0000	2.2868
Total	**1.2200e-003**	**0.0121**	**0.0163**	**3.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.4000e-004**	**5.4000e-004**	**0.0000**	**2.2685**	**2.2685**	**7.3000e-004**	**0.0000**	**2.2868**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1379	0.1379	0.0000	0.0000	0.1380
Total	**7.0000e-005**	**5.0000e-005**	**5.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1379**	**0.1379**	**0.0000**	**0.0000**	**0.1380**

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	1.2200e-003	0.0121	0.0163	3.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.2685	2.2685	7.3000e-004	0.0000	2.2868
Total	**1.2200e-003**	**0.0121**	**0.0163**	**3.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.4000e-004**	**5.4000e-004**	**0.0000**	**2.2685**	**2.2685**	**7.3000e-004**	**0.0000**	**2.2868**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	5.2000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1379	0.1379	0.0000	0.0000	0.1380
Total	**7.0000e-005**	**5.0000e-005**	**5.2000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1379**	**0.1379**	**0.0000**	**0.0000**	**0.1380**

3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0413	0.3741	0.3286	5.2000e-004		0.0218	0.0218		0.0205	0.0205	0.0000	45.1640	45.1640	0.0110	0.0000	45.4394
Total	**0.0413**	**0.3741**	**0.3286**	**5.2000e-004**		**0.0218**	**0.0218**		**0.0205**	**0.0205**	**0.0000**	**45.1640**	**45.1640**	**0.0110**	**0.0000**	**45.4394**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7100e-003	0.1359	0.0266	3.4000e-004	8.2500e-003	7.7000e-004	9.0200e-003	2.3800e-003	7.4000e-004	3.1200e-003	0.0000	32.1252	32.1252	2.5700e-003	0.0000	32.1894
Worker	0.0154	0.0108	0.1153	3.4000e-004	0.0369	2.3000e-004	0.0371	9.7900e-003	2.1000e-004	0.0100	0.0000	30.8431	30.8431	7.7000e-004	0.0000	30.8624
Total	**0.0191**	**0.1467**	**0.1419**	**6.8000e-004**	**0.0451**	**1.0000e-003**	**0.0461**	**0.0122**	**9.5000e-004**	**0.0131**	**0.0000**	**62.9684**	**62.9684**	**3.3400e-003**	**0.0000**	**63.0519**

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	0.0413	0.3741	0.3286	5.2000e-004		0.0218	0.0218		0.0205	0.0205	0.0000	45.1639	45.1639	0.0110	0.0000	45.4394
Total	**0.0413**	**0.3741**	**0.3286**	**5.2000e-004**		**0.0218**	**0.0218**		**0.0205**	**0.0205**	**0.0000**	**45.1639**	**45.1639**	**0.0110**	**0.0000**	**45.4394**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.7100e-003	0.1359	0.0266	3.4000e-004	7.7300e-003	7.7000e-004	8.4900e-003	2.2500e-003	7.4000e-004	2.9900e-003	0.0000	32.1252	32.1252	2.5700e-003	0.0000	32.1894
Worker	0.0154	0.0108	0.1153	3.4000e-004	0.0340	2.3000e-004	0.0342	9.0800e-003	2.1000e-004	9.2900e-003	0.0000	30.8431	30.8431	7.7000e-004	0.0000	30.8624
Total	**0.0191**	**0.1467**	**0.1419**	**6.8000e-004**	**0.0417**	**1.0000e-003**	**0.0427**	**0.0113**	**9.5000e-004**	**0.0123**	**0.0000**	**62.9684**	**62.9684**	**3.3400e-003**	**0.0000**	**63.0519**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2167	1.9873	1.8896	3.0700e-003		0.1093	0.1093		0.1028	0.1028	0.0000	264.0665	264.0665	0.0637	0.0000	265.6592
Total	**0.2167**	**1.9873**	**1.8896**	**3.0700e-003**		**0.1093**	**0.1093**		**0.1028**	**0.1028**	**0.0000**	**264.0665**	**264.0665**	**0.0637**	**0.0000**	**265.6592**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0182	0.7122	0.1370	1.9500e-003	0.0482	1.3600e-003	0.0496	0.0139	1.3000e-003	0.0152	0.0000	186.3467	186.3467	0.0142	0.0000	186.7021
Worker	0.0841	0.0567	0.6173	1.9300e-003	0.2155	1.2900e-003	0.2168	0.0572	1.1900e-003	0.0584	0.0000	174.2850	174.2850	4.0600e-003	0.0000	174.3865
Total	**0.1023**	**0.7688**	**0.7543**	**3.8800e-003**	**0.2638**	**2.6500e-003**	**0.2664**	**0.0712**	**2.4900e-003**	**0.0736**	**0.0000**	**360.6317**	**360.6317**	**0.0183**	**0.0000**	**361.0886**

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	0.2167	1.9873	1.8896	3.0700e-003		0.1093	0.1093		0.1028	0.1028	0.0000	264.0662	264.0662	0.0637	0.0000	265.6589
Total	**0.2167**	**1.9873**	**1.8896**	**3.0700e-003**		**0.1093**	**0.1093**		**0.1028**	**0.1028**	**0.0000**	**264.0662**	**264.0662**	**0.0637**	**0.0000**	**265.6589**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0182	0.7122	0.1370	1.9500e-003	0.0452	1.3600e-003	0.0465	0.0132	1.3000e-003	0.0145	0.0000	186.3467	186.3467	0.0142	0.0000	186.7021
Worker	0.0841	0.0567	0.6173	1.9300e-003	0.1987	1.2900e-003	0.2000	0.0531	1.1900e-003	0.0543	0.0000	174.2850	174.2850	4.0600e-003	0.0000	174.3865
Total	**0.1023**	**0.7688**	**0.7543**	**3.8800e-003**	**0.2439**	**2.6500e-003**	**0.2465**	**0.0663**	**2.4900e-003**	**0.0688**	**0.0000**	**360.6317**	**360.6317**	**0.0183**	**0.0000**	**361.0886**

3.9 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0151	0.1550	0.1758	2.7000e-004		8.1300e-003	8.1300e-003		7.4800e-003	7.4800e-003	0.0000	24.0282	24.0282	7.7700e-003	0.0000	24.2225
Paving	2.6500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1550**	**0.1758**	**2.7000e-004**		**8.1300e-003**	**8.1300e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**24.0282**	**24.0282**	**7.7700e-003**	**0.0000**	**24.2225**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	5.2000e-004	5.6700e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.5999	1.5999	4.0000e-005	0.0000	1.6009
Total	**7.7000e-004**	**5.2000e-004**	**5.6700e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**1.9900e-003**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.5999**	**1.5999**	**4.0000e-005**	**0.0000**	**1.6009**

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	0.0151	0.1550	0.1758	2.7000e-004		8.1300e-003	8.1300e-003		7.4800e-003	7.4800e-003	0.0000	24.0282	24.0282	7.7700e-003	0.0000	24.2224
Paving	2.6500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0177**	**0.1550**	**0.1758**	**2.7000e-004**		**8.1300e-003**	**8.1300e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**24.0282**	**24.0282**	**7.7700e-003**	**0.0000**	**24.2224**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	5.2000e-004	5.6700e-003	2.0000e-005	1.8200e-003	1.0000e-005	1.8400e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5999	1.5999	4.0000e-005	0.0000	1.6009
Total	**7.7000e-004**	**5.2000e-004**	**5.6700e-003**	**2.0000e-005**	**1.8200e-003**	**1.0000e-005**	**1.8400e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5999**	**1.5999**	**4.0000e-005**	**0.0000**	**1.6009**

3.10 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9000e-004	6.8700e-003	8.1800e-003	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.1490	1.1490	8.0000e-005	0.0000	1.1509
Total	**0.0745**	**6.8700e-003**	**8.1800e-003**	**1.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.1490**	**1.1490**	**8.0000e-005**	**0.0000**	**1.1509**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.4000e-004	4.8200e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.3599	1.3599	3.0000e-005	0.0000	1.3607
Total	**6.6000e-004**	**4.4000e-004**	**4.8200e-003**	**2.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.6900e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.3599**	**1.3599**	**3.0000e-005**	**0.0000**	**1.3607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9000e-004	6.8700e-003	8.1800e-003	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.1490	1.1490	8.0000e-005	0.0000	1.1509
Total	**0.0745**	**6.8700e-003**	**8.1800e-003**	**1.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.1490**	**1.1490**	**8.0000e-005**	**0.0000**	**1.1509**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.4000e-004	4.8200e-003	2.0000e-005	1.5500e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3599	1.3599	3.0000e-005	0.0000	1.3607

Total	**6.6000e-004**	**4.4000e-004**	**4.8200e-003**	**2.0000e-005**	**1.5500e-003**	**1.0000e-005**	**1.5600e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.3599**	**1.3599**	**3.0000e-005**	**0.0000**	**1.3607**

3.10 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1225					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.1241**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0200e-003	6.6000e-004	7.3900e-003	2.0000e-005	2.8000e-003	2.0000e-005	2.8200e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	2.1839	2.1839	5.0000e-005	0.0000	2.1850
Total	**1.0200e-003**	**6.6000e-004**	**7.3900e-003**	**2.0000e-005**	**2.8000e-003**	**2.0000e-005**	**2.8200e-003**	**7.4000e-004**	**2.0000e-005**	**7.6000e-004**	**0.0000**	**2.1839**	**2.1839**	**5.0000e-005**	**0.0000**	**2.1850**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1225					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.1241**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0200e-003	6.6000e-004	7.3900e-003	2.0000e-005	2.5800e-003	2.0000e-005	2.6000e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.1839	2.1839	5.0000e-005	0.0000	2.1850
Total	**1.0200e-003**	**6.6000e-004**	**7.3900e-003**	**2.0000e-005**	**2.5800e-003**	**2.0000e-005**	**2.6000e-003**	**6.9000e-004**	**2.0000e-005**	**7.1000e-004**	**0.0000**	**2.1839**	**2.1839**	**5.0000e-005**	**0.0000**	**2.1850**

3.11 Finishing and Landscaping - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0100e-003	8.8800e-003	0.0163	3.0000e-005		4.3000e-004	4.3000e-004		4.0000e-004	4.0000e-004	0.0000	2.2680	2.2680	7.3000e-004	0.0000	2.2864
Total	**1.0100e-003**	**8.8800e-003**	**0.0163**	**3.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**2.2680**	**2.2680**	**7.3000e-004**	**0.0000**	**2.2864**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1285	0.1285	0.0000	0.0000	0.1285
Total	**6.0000e-005**	**4.0000e-005**	**4.3000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1285**	**0.1285**	**0.0000**	**0.0000**	**0.1285**

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	1.0100e-003	8.8800e-003	0.0163	3.0000e-005		4.3000e-004	4.3000e-004		4.0000e-004	4.0000e-004	0.0000	2.2680	2.2680	7.3000e-004	0.0000	2.2864
Total	**1.0100e-003**	**8.8800e-003**	**0.0163**	**3.0000e-005**		**4.3000e-004**	**4.3000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**2.2680**	**2.2680**	**7.3000e-004**	**0.0000**	**2.2864**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1285	0.1285	0.0000	0.0000	0.1285
Total	**6.0000e-005**	**4.0000e-005**	**4.3000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1285**	**0.1285**	**0.0000**	**0.0000**	**0.1285**

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

Moreno Valley Elmentary School Operations - Riverside-South Coast County, Summer

Moreno Valley Elmentary School Operations

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	467.00	Student	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,460.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 SCE Sustainability Report

Land Use - accounts for change in number of students

Construction Phase -

Area Coating - accounts only for parking lot area

Energy Use -

Water And Wastewater - modeling assumes that students are already using water on other campuses before transferring to proposed elementary school

Solid Waste - modeling assumes that students are already generating solid waste on other campuses before transferring to proposed elementary school

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix - see assump file for adjusted fleet mix

Vehicle Trips - based on data received from EPD Solutions TIA

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	19654	2586
tblFleetMix	HHD	0.07	6.2260e-003
tblFleetMix	LDA	0.55	0.68
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	1.3630e-003
tblFleetMix	LHD2	4.9700e-003	4.4500e-004
tblFleetMix	MCY	4.5470e-003	5.7070e-003
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	9.6500e-004	8.6000e-005
tblFleetMix	MHD	0.02	1.5690e-003
tblFleetMix	OBUS	1.3970e-003	0.00
tblFleetMix	SBUS	9.3200e-004	8.3000e-005
tblFleetMix	UBUS	1.1600e-003	0.00
tblLandUse	LandUseSquareFeet	39,042.77	82,000.00
tblLandUse	LotAcreage	0.90	1.45
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	85.23	0.00
tblVehicleEF	HHD	1.36	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.09	3.7672e-007
tblVehicleEF	HHD	3.11	6.00
tblVehicleEF	HHD	0.45	0.30
tblVehicleEF	HHD	1.41	4.6546e-003
tblVehicleEF	HHD	6,423.61	1,112.99

tblVehicleEF	HHD	1,444.51	1,341.20
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	24.87	5.85
tblVehicleEF	HHD	2.31	2.81
tblVehicleEF	HHD	20.31	2.22
tblVehicleEF	HHD	0.01	2.7959e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.7000e-005	5.5904e-007
tblVehicleEF	HHD	0.01	2.6750e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7606e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.4000e-005	5.1401e-007
tblVehicleEF	HHD	7.3000e-005	2.9653e-006
tblVehicleEF	HHD	2.3460e-003	1.0989e-004
tblVehicleEF	HHD	0.80	0.44
tblVehicleEF	HHD	4.3000e-005	1.8146e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.5800e-004	5.0332e-004
tblVehicleEF	HHD	0.04	1.0937e-006
tblVehicleEF	HHD	0.06	9.2379e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	3.6965e-007
tblVehicleEF	HHD	7.3000e-005	2.9653e-006
tblVehicleEF	HHD	2.3460e-003	1.0989e-004
tblVehicleEF	HHD	0.92	0.50
tblVehicleEF	HHD	4.3000e-005	1.8146e-006
tblVehicleEF	HHD	0.10	0.08
tblVehicleEF	HHD	1.5800e-004	5.0332e-004

tblVehicleEF	HHD	0.04	1.1974e-006
tblVehicleEF	HHD	1.28	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.09	3.6184e-007
tblVehicleEF	HHD	2.26	5.87
tblVehicleEF	HHD	0.45	0.30
tblVehicleEF	HHD	1.34	4.3927e-003
tblVehicleEF	HHD	6,805.04	973.26
tblVehicleEF	HHD	1,444.51	1,342.40
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	25.67	4.85
tblVehicleEF	HHD	2.18	2.32
tblVehicleEF	HHD	20.31	2.55
tblVehicleEF	HHD	9.3550e-003	2.4336e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.7000e-005	5.5904e-007
tblVehicleEF	HHD	8.9510e-003	2.3283e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7606e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.4000e-005	5.1401e-007
tblVehicleEF	HHD	1.3900e-004	5.5852e-006
tblVehicleEF	HHD	2.6650e-003	1.2087e-004
tblVehicleEF	HHD	0.75	0.46
tblVehicleEF	HHD	8.2000e-005	3.7649e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.6100e-004	5.0985e-004
tblVehicleEF	HHD	0.04	1.0465e-006
tblVehicleEF	HHD	0.06	9.1356e-003

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.8000e-005	3.6601e-007
tblVehicleEF	HHD	1.3900e-004	5.5852e-006
tblVehicleEF	HHD	2.6650e-003	1.2087e-004
tblVehicleEF	HHD	0.87	0.52
tblVehicleEF	HHD	8.2000e-005	3.7649e-006
tblVehicleEF	HHD	0.10	0.08
tblVehicleEF	HHD	1.6100e-004	5.0985e-004
tblVehicleEF	HHD	0.04	1.1457e-006
tblVehicleEF	HHD	1.46	0.02
tblVehicleEF	HHD	0.03	2.2557e-003
tblVehicleEF	HHD	0.09	2.1187e-007
tblVehicleEF	HHD	4.28	6.14
tblVehicleEF	HHD	0.44	0.23
tblVehicleEF	HHD	1.42	4.6050e-003
tblVehicleEF	HHD	5,896.87	1,113.28
tblVehicleEF	HHD	1,444.51	1,323.58
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	23.77	6.08
tblVehicleEF	HHD	2.30	2.76
tblVehicleEF	HHD	20.31	2.22
tblVehicleEF	HHD	0.01	3.4605e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	3.7000e-005	5.3117e-007
tblVehicleEF	HHD	0.01	3.3108e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7590e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	3.4000e-005	4.8839e-007

tblVehicleEF	HHD	5.5000e-005	3.0622e-006
tblVehicleEF	HHD	2.4470e-003	1.2294e-004
tblVehicleEF	HHD	0.86	0.41
tblVehicleEF	HHD	3.6000e-005	1.9621e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.6900e-004	5.3511e-004
tblVehicleEF	HHD	0.04	1.0855e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	3.8260e-007
tblVehicleEF	HHD	5.5000e-005	3.0622e-006
tblVehicleEF	HHD	2.4470e-003	1.2294e-004
tblVehicleEF	HHD	0.99	0.47
tblVehicleEF	HHD	3.6000e-005	1.9621e-006
tblVehicleEF	HHD	0.10	0.05
tblVehicleEF	HHD	1.6900e-004	5.3511e-004
tblVehicleEF	HHD	0.04	1.1884e-006
tblVehicleEF	LDA	3.6620e-003	2.0753e-003
tblVehicleEF	LDA	4.7760e-003	0.04
tblVehicleEF	LDA	0.54	0.60
tblVehicleEF	LDA	1.05	2.09
tblVehicleEF	LDA	245.52	256.38
tblVehicleEF	LDA	56.65	51.48
tblVehicleEF	LDA	0.05	0.03
tblVehicleEF	LDA	0.07	0.18
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.5153e-003
tblVehicleEF	LDA	2.2500e-003	1.7672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003

tblVehicleEF	LDA	1.4580e-003	1.3953e-003
tblVehicleEF	LDA	2.0690e-003	1.6249e-003
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	9.2080e-003	8.0166e-003
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.21
tblVehicleEF	LDA	2.4580e-003	2.4946e-003
tblVehicleEF	LDA	5.8400e-004	5.0939e-004
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDA	4.1530e-003	2.2102e-003
tblVehicleEF	LDA	4.1450e-003	0.04
tblVehicleEF	LDA	0.66	0.72
tblVehicleEF	LDA	0.93	1.75
tblVehicleEF	LDA	267.36	262.48
tblVehicleEF	LDA	56.65	50.97
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.06	0.15
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.5153e-003
tblVehicleEF	LDA	2.2500e-003	1.7672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4580e-003	1.3953e-003

tblVehicleEF	LDA	2.0690e-003	1.6249e-003
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.01	8.9448e-003
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.18
tblVehicleEF	LDA	2.6780e-003	2.5966e-003
tblVehicleEF	LDA	5.8200e-004	5.0444e-004
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	3.5320e-003	2.0955e-003
tblVehicleEF	LDA	4.9050e-003	0.05
tblVehicleEF	LDA	0.51	0.58
tblVehicleEF	LDA	1.08	2.07
tblVehicleEF	LDA	239.46	252.87
tblVehicleEF	LDA	56.65	53.18
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.07	0.17
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.3706e-003
tblVehicleEF	LDA	2.2500e-003	1.8338e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4580e-003	1.2627e-003
tblVehicleEF	LDA	2.0690e-003	1.6862e-003

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tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	8.8850e-003	7.8721e-003
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.3970e-003	2.5015e-003
tblVehicleEF	LDA	5.8500e-004	5.2622e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDT1	0.01	4.7579e-003
tblVehicleEF	LDT1	0.02	0.06
tblVehicleEF	LDT1	1.32	1.37
tblVehicleEF	LDT1	3.05	2.37
tblVehicleEF	LDT1	305.87	304.11
tblVehicleEF	LDT1	70.39	61.80
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.19	0.29
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	1.9990e-003
tblVehicleEF	LDT1	3.5150e-003	2.3175e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.8394e-003
tblVehicleEF	LDT1	3.2320e-003	2.1309e-003
tblVehicleEF	LDT1	0.20	0.18

tblVehicleEF	LDT1	0.32	0.25
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.19	0.80
tblVehicleEF	LDT1	0.21	0.41
tblVehicleEF	LDT1	3.0750e-003	2.9441e-003
tblVehicleEF	LDT1	7.5800e-004	6.1160e-004
tblVehicleEF	LDT1	0.20	0.18
tblVehicleEF	LDT1	0.32	0.25
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.19	0.80
tblVehicleEF	LDT1	0.23	0.45
tblVehicleEF	LDT1	0.01	5.0321e-003
tblVehicleEF	LDT1	0.01	0.06
tblVehicleEF	LDT1	1.59	1.62
tblVehicleEF	LDT1	2.68	1.98
tblVehicleEF	LDT1	332.27	308.00
tblVehicleEF	LDT1	70.39	61.22
tblVehicleEF	LDT1	0.12	0.07
tblVehicleEF	LDT1	0.18	0.21
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	1.9990e-003
tblVehicleEF	LDT1	3.5150e-003	2.3175e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.8394e-003
tblVehicleEF	LDT1	3.2320e-003	2.1309e-003
tblVehicleEF	LDT1	0.38	0.33
tblVehicleEF	LDT1	0.40	0.29

tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.19	0.78
tblVehicleEF	LDT1	0.18	0.35
tblVehicleEF	LDT1	3.3430e-003	3.0478e-003
tblVehicleEF	LDT1	7.5100e-004	6.0587e-004
tblVehicleEF	LDT1	0.38	0.33
tblVehicleEF	LDT1	0.40	0.29
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.19	0.78
tblVehicleEF	LDT1	0.20	0.38
tblVehicleEF	LDT1	0.01	6.5513e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.24	1.33
tblVehicleEF	LDT1	3.11	2.35
tblVehicleEF	LDT1	298.00	300.45
tblVehicleEF	LDT1	70.39	64.83
tblVehicleEF	LDT1	0.12	0.12
tblVehicleEF	LDT1	0.19	0.28
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	2.0657e-003
tblVehicleEF	LDT1	3.5150e-003	2.7558e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.9009e-003
tblVehicleEF	LDT1	3.2320e-003	2.5340e-003
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.36	0.28
tblVehicleEF	LDT1	0.11	0.12

tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.22	0.93
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	2.9950e-003	2.9731e-003
tblVehicleEF	LDT1	7.5900e-004	6.4152e-004
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.36	0.28
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.22	0.93
tblVehicleEF	LDT1	0.24	0.45
tblVehicleEF	LDT2	5.1640e-003	3.3083e-003
tblVehicleEF	LDT2	6.4600e-003	0.06
tblVehicleEF	LDT2	0.71	0.85
tblVehicleEF	LDT2	1.39	2.68
tblVehicleEF	LDT2	342.68	322.21
tblVehicleEF	LDT2	78.65	66.75
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.28
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.5128e-003
tblVehicleEF	LDT2	2.3460e-003	1.7069e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.3922e-003
tblVehicleEF	LDT2	2.1570e-003	1.5695e-003
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.01

tblVehicleEF	LDT2	0.06	0.41
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	3.4320e-003	3.1520e-003
tblVehicleEF	LDT2	8.1000e-004	6.6058e-004
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.41
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	5.8560e-003	3.5139e-003
tblVehicleEF	LDT2	5.6090e-003	0.05
tblVehicleEF	LDT2	0.87	1.02
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tblVehicleEF	LDT2	372.88	328.77
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tblVehicleEF	LDT2	0.07	0.05
tblVehicleEF	LDT2	0.11	0.23
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.5128e-003
tblVehicleEF	LDT2	2.3460e-003	1.7069e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.3922e-003
tblVehicleEF	LDT2	2.1570e-003	1.5695e-003
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tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.10	0.14
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.40

tblVehicleEF	LDT2	0.08	0.27
tblVehicleEF	LDT2	3.7360e-003	3.2526e-003
tblVehicleEF	LDT2	8.0700e-004	6.5420e-004
tblVehicleEF	LDT2	0.13	0.16
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.10	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.40
tblVehicleEF	LDT2	0.08	0.29
tblVehicleEF	LDT2	4.9650e-003	3.5086e-003
tblVehicleEF	LDT2	6.6500e-003	0.07
tblVehicleEF	LDT2	0.67	0.82
tblVehicleEF	LDT2	1.42	2.66
tblVehicleEF	LDT2	333.62	318.70
tblVehicleEF	LDT2	78.65	68.95
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.28
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.4090e-003
tblVehicleEF	LDT2	2.3460e-003	1.8664e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.2971e-003
tblVehicleEF	LDT2	2.1570e-003	1.7161e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.47
tblVehicleEF	LDT2	0.09	0.31

tblVehicleEF	LDT2	3.3410e-003	3.1530e-003
tblVehicleEF	LDT2	8.1000e-004	6.8232e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.47
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LHD1	5.1810e-003	4.6549e-003
tblVehicleEF	LHD1	9.5070e-003	3.9149e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.88	0.66
tblVehicleEF	LHD1	2.26	0.92
tblVehicleEF	LHD1	9.26	9.43
tblVehicleEF	LHD1	602.20	628.02
tblVehicleEF	LHD1	29.86	10.01
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.06	1.53
tblVehicleEF	LHD1	0.96	0.29
tblVehicleEF	LHD1	9.7000e-004	1.0123e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	7.6030e-003
tblVehicleEF	LHD1	8.2900e-004	1.9818e-004
tblVehicleEF	LHD1	9.2800e-004	9.6849e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	7.2531e-003
tblVehicleEF	LHD1	7.6200e-004	1.8222e-004
tblVehicleEF	LHD1	3.7780e-003	2.5175e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8760e-003	1.3132e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.31	0.46
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	8.8505e-005
tblVehicleEF	LHD1	5.9030e-003	6.0168e-003
tblVehicleEF	LHD1	3.4200e-004	9.9030e-005
tblVehicleEF	LHD1	3.7780e-003	2.5175e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8760e-003	1.3132e-003
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tblVehicleEF	LHD1	0.31	0.46
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	5.1810e-003	4.6644e-003
tblVehicleEF	LHD1	9.6980e-003	3.9716e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.89	0.67
tblVehicleEF	LHD1	2.15	0.87
tblVehicleEF	LHD1	9.26	9.16
tblVehicleEF	LHD1	602.20	618.63
tblVehicleEF	LHD1	29.86	9.95
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	1.94	0.70
tblVehicleEF	LHD1	0.93	0.26
tblVehicleEF	LHD1	9.7000e-004	1.0123e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01

tblVehicleEF	LHD1	0.01	7.6030e-003
tblVehicleEF	LHD1	8.2900e-004	1.9818e-004
tblVehicleEF	LHD1	9.2800e-004	9.6849e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	7.2531e-003
tblVehicleEF	LHD1	7.6200e-004	1.8222e-004
tblVehicleEF	LHD1	7.0590e-003	4.4753e-003
tblVehicleEF	LHD1	0.12	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.5660e-003	2.5194e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.32	0.46
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	8.8505e-005
tblVehicleEF	LHD1	5.9030e-003	6.0169e-003
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tblVehicleEF	LHD1	7.0590e-003	4.4753e-003
tblVehicleEF	LHD1	0.12	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.5660e-003	2.5194e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.32	0.46
tblVehicleEF	LHD1	0.25	0.08
tblVehicleEF	LHD1	5.1810e-003	4.6596e-003
tblVehicleEF	LHD1	9.4900e-003	4.8833e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
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tblVehicleEF	LHD1	2.26	0.91
tblVehicleEF	LHD1	9.26	9.43

tblVehicleEF	LHD1	602.20	628.03
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tblVehicleEF	LHD1	0.95	0.29
tblVehicleEF	LHD1	9.7000e-004	1.0052e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
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tblVehicleEF	LHD1	9.2800e-004	9.6173e-004
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tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.6200e-004	2.0132e-004
tblVehicleEF	LHD1	3.3490e-003	2.6467e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7110e-003	1.3783e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.34	0.49
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	9.1081e-005
tblVehicleEF	LHD1	5.9020e-003	6.1050e-003
tblVehicleEF	LHD1	3.4200e-004	1.0030e-004
tblVehicleEF	LHD1	3.3490e-003	2.6467e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7110e-003	1.3783e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.34	0.49

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD2	3.4600e-003	2.8303e-003
tblVehicleEF	LHD2	4.0020e-003	2.9784e-003
tblVehicleEF	LHD2	7.4040e-003	6.8488e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.08	0.49
tblVehicleEF	LHD2	14.41	15.04
tblVehicleEF	LHD2	598.41	622.37
tblVehicleEF	LHD2	23.24	6.48
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	1.50	1.67
tblVehicleEF	LHD2	0.50	0.17
tblVehicleEF	LHD2	1.3120e-003	1.5452e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	3.7000e-004	9.3353e-005
tblVehicleEF	LHD2	1.2550e-003	1.4784e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	8.5835e-005
tblVehicleEF	LHD2	1.4050e-003	1.1714e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.4200e-004	6.3045e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.3833e-004

tblVehicleEF	LHD2	5.8170e-003	5.9040e-003
tblVehicleEF	LHD2	2.5200e-004	6.4108e-005
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4200e-004	6.3045e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	3.4600e-003	2.8359e-003
tblVehicleEF	LHD2	4.0450e-003	2.9983e-003
tblVehicleEF	LHD2	7.1500e-003	6.6333e-003
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tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.04	0.47
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tblVehicleEF	LHD2	1.41	0.79
tblVehicleEF	LHD2	0.48	0.15
tblVehicleEF	LHD2	1.3120e-003	1.5452e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	1.2550e-003	1.4784e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
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tblVehicleEF	LHD2	2.6530e-003	2.0861e-003
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tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.3833e-004
tblVehicleEF	LHD2	5.8170e-003	5.9040e-003
tblVehicleEF	LHD2	2.5100e-004	6.3770e-005
tblVehicleEF	LHD2	2.6530e-003	2.0861e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3950e-003	1.2081e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	3.4600e-003	2.8401e-003
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tblVehicleEF	LHD2	7.4470e-003	7.6034e-003
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tblVehicleEF	LHD2	0.45	0.48
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tblVehicleEF	LHD2	14.41	15.04
tblVehicleEF	LHD2	598.41	622.37
tblVehicleEF	LHD2	23.24	6.51
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tblVehicleEF	LHD2	1.48	1.65
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tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.0149e-004
tblVehicleEF	LHD2	1.2550e-003	1.4422e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	9.3316e-005
tblVehicleEF	LHD2	1.1040e-003	1.2006e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.2900e-004	6.5400e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.22
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4345e-004
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tblVehicleEF	LHD2	1.1040e-003	1.2006e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.2900e-004	6.5400e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.22
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	MCY	0.42	0.35
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.14	19.16
tblVehicleEF	MCY	9.69	8.62
tblVehicleEF	MCY	166.26	207.70
tblVehicleEF	MCY	45.80	59.44

tblVehicleEF	MCY	1.12	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	2.2005e-003
tblVehicleEF	MCY	3.3680e-003	3.0777e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	2.0559e-003
tblVehicleEF	MCY	3.1720e-003	2.8938e-003
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.85	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.06	1.84
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tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.85	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.63	2.63
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.24	2.00
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.14	0.21
tblVehicleEF	MCY	19.85	19.13
tblVehicleEF	MCY	9.10	7.90
tblVehicleEF	MCY	166.26	213.16
tblVehicleEF	MCY	45.80	57.68
tblVehicleEF	MCY	0.98	0.98

tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	2.2005e-003
tblVehicleEF	MCY	3.3680e-003	3.0777e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	2.0559e-003
tblVehicleEF	MCY	3.1720e-003	2.8938e-003
tblVehicleEF	MCY	3.36	2.74
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tblVehicleEF	MCY	2.10	1.72
tblVehicleEF	MCY	2.11	2.09
tblVehicleEF	MCY	0.56	1.79
tblVehicleEF	MCY	1.85	1.61
tblVehicleEF	MCY	2.0480e-003	2.1094e-003
tblVehicleEF	MCY	6.6100e-004	5.7079e-004
tblVehicleEF	MCY	3.36	2.74
tblVehicleEF	MCY	1.24	1.09
tblVehicleEF	MCY	2.10	1.72
tblVehicleEF	MCY	2.61	2.57
tblVehicleEF	MCY	0.56	1.79
tblVehicleEF	MCY	2.01	1.76
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.68	18.59
tblVehicleEF	MCY	9.65	8.41
tblVehicleEF	MCY	166.26	206.72
tblVehicleEF	MCY	45.80	60.18
tblVehicleEF	MCY	1.12	1.09
tblVehicleEF	MCY	0.31	0.26

tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	1.7610e-003
tblVehicleEF	MCY	3.3680e-003	2.8427e-003
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tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6471e-003
tblVehicleEF	MCY	3.1720e-003	2.6759e-003
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tblVehicleEF	MCY	1.04	1.06
tblVehicleEF	MCY	0.74	0.76
tblVehicleEF	MCY	2.12	2.11
tblVehicleEF	MCY	0.64	2.08
tblVehicleEF	MCY	2.07	1.80
tblVehicleEF	MCY	2.0300e-003	2.0457e-003
tblVehicleEF	MCY	6.7700e-004	5.9555e-004
tblVehicleEF	MCY	1.60	1.64
tblVehicleEF	MCY	1.04	1.06
tblVehicleEF	MCY	0.74	0.76
tblVehicleEF	MCY	2.62	2.60
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tblVehicleEF	MCY	2.26	1.96
tblVehicleEF	MDV	0.01	4.2459e-003
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tblVehicleEF	MDV	1.26	1.01
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tblVehicleEF	MDV	474.24	404.92
tblVehicleEF	MDV	107.24	81.42
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.27	0.36
tblVehicleEF	MDV	0.04	0.04

tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.6800e-003	1.6151e-003
tblVehicleEF	MDV	2.4130e-003	1.8074e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.4890e-003
tblVehicleEF	MDV	2.2190e-003	1.6619e-003
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	4.7510e-003	3.9042e-003
tblVehicleEF	MDV	1.1230e-003	8.0576e-004
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.24	0.45
tblVehicleEF	MDV	0.01	4.5049e-003
tblVehicleEF	MDV	0.01	0.07
tblVehicleEF	MDV	1.53	1.20
tblVehicleEF	MDV	2.54	2.62
tblVehicleEF	MDV	514.80	405.54
tblVehicleEF	MDV	107.24	80.68
tblVehicleEF	MDV	0.14	0.07
tblVehicleEF	MDV	0.26	0.28
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.6800e-003	1.6151e-003
tblVehicleEF	MDV	2.4130e-003	1.8074e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.4890e-003
tblVehicleEF	MDV	2.2190e-003	1.6619e-003
tblVehicleEF	MDV	0.21	0.20
tblVehicleEF	MDV	0.23	0.17
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	5.1610e-003	4.0094e-003
tblVehicleEF	MDV	1.1170e-003	7.9841e-004
tblVehicleEF	MDV	0.21	0.20
tblVehicleEF	MDV	0.23	0.17
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	0.01	4.6307e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.18	0.97
tblVehicleEF	MDV	2.94	3.12
tblVehicleEF	MDV	462.11	401.17
tblVehicleEF	MDV	107.24	85.93
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	0.27	0.36
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.6800e-003	1.4812e-003

tblVehicleEF	MDV	2.4130e-003	1.9435e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.3664e-003
tblVehicleEF	MDV	2.2190e-003	1.7873e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.54
tblVehicleEF	MDV	0.23	0.41
tblVehicleEF	MDV	4.6290e-003	3.9662e-003
tblVehicleEF	MDV	1.1240e-003	8.5036e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.54
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MH	0.03	3.1967e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.33	0.34
tblVehicleEF	MH	5.58	0.00
tblVehicleEF	MH	998.83	935.85
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.57	4.40
tblVehicleEF	MH	0.82	0.00
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.09
tblVehicleEF	MH	1.0280e-003	0.00

tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.08
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	9.0994e-003
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tblVehicleEF	MH	1.47	0.00
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tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.03	3.1967e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.40	0.34
tblVehicleEF	MH	5.19	0.00
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tblVehicleEF	MH	57.38	0.00
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.09
tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	0.06	0.06

tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.08
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tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	1.00	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
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tblVehicleEF	MH	6.6400e-004	0.00
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tblVehicleEF	MH	0.34	0.00
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tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.32	0.34
tblVehicleEF	MH	5.61	0.00
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tblVehicleEF	MH	0.01	0.02
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tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2460e-003	4.0000e-003

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tblVehicleEF	MH	6.7200e-004	0.00
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tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.33	0.04
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tblVehicleEF	MHD	6.4200e-004	6.7496e-005
tblVehicleEF	MHD	1.6000e-003	4.3918e-004
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tblVehicleEF	MHD	8.0100e-004	2.3495e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.36	0.04
tblVehicleEF	MHD	0.02	2.6064e-003
tblVehicleEF	MHD	3.2380e-003	7.7299e-004
tblVehicleEF	MHD	0.05	6.0926e-003
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tblVehicleEF	MHD	0.25	0.31
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
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tblVehicleEF	MHD	1.5560e-003	4.6415e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	MHD	0.02	0.08

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tblVehicleEF	MHD	1.1400e-003	1.7032e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
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tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	6.2900e-004	2.4773e-004
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tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	OBUS	6.8000e-005	8.3538e-005
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.0070e-003	5.8955e-003
tblVehicleEF	OBUS	8.4500e-004	2.0774e-004
tblVehicleEF	OBUS	6.5000e-005	7.9924e-005
tblVehicleEF	OBUS	0.06	0.06
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tblVehicleEF	OBUS	7.7700e-004	1.9101e-004

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tblVehicleEF	OBUS	0.13	0.13

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tblVehicleEF	OBUS	5.0070e-003	5.8955e-003
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tblVehicleEF	SBUS	1,098.11	1,106.71
tblVehicleEF	SBUS	54.55	6.99
tblVehicleEF	SBUS	9.00	3.31
tblVehicleEF	SBUS	4.26	4.54
tblVehicleEF	SBUS	12.33	0.72
tblVehicleEF	SBUS	0.01	4.3886e-003

tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.7600e-004	4.6052e-005
tblVehicleEF	SBUS	0.01	4.1987e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6910e-003	2.6470e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	4.2343e-005
tblVehicleEF	SBUS	4.2260e-003	1.3983e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.2070e-003	7.6515e-004
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.37	0.05
tblVehicleEF	SBUS	0.01	3.4316e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6500e-004	6.9154e-005
tblVehicleEF	SBUS	4.2260e-003	1.3983e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.2070e-003	7.6515e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.44	3.3463e-003
tblVehicleEF	UBUS	0.08	0.05
tblVehicleEF	UBUS	7.89	23.58
tblVehicleEF	UBUS	14.42	1.90
tblVehicleEF	UBUS	1,799.80	1,641.14

tblVehicleEF	UBUS	153.89	40.90
tblVehicleEF	UBUS	4.15	0.30
tblVehicleEF	UBUS	12.31	0.23
tblVehicleEF	UBUS	0.49	0.06
tblVehicleEF	UBUS	0.01	5.5502e-003
tblVehicleEF	UBUS	0.04	8.8403e-004
tblVehicleEF	UBUS	1.4590e-003	3.4210e-004
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	1.3875e-003
tblVehicleEF	UBUS	0.04	8.1284e-004
tblVehicleEF	UBUS	1.3420e-003	3.1455e-004
tblVehicleEF	UBUS	9.4280e-003	2.7001e-003
tblVehicleEF	UBUS	0.11	0.02
tblVehicleEF	UBUS	4.6810e-003	1.0932e-003
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.13	0.10
tblVehicleEF	UBUS	9.6700e-003	9.3883e-003
tblVehicleEF	UBUS	1.8000e-003	4.0469e-004
tblVehicleEF	UBUS	9.4280e-003	2.7001e-003
tblVehicleEF	UBUS	0.11	0.02
tblVehicleEF	UBUS	4.6810e-003	1.0932e-003
tblVehicleEF	UBUS	1.94	3.11
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.23	0.11
tblVehicleEF	UBUS	1.44	3.4139e-003
tblVehicleEF	UBUS	0.08	0.04
tblVehicleEF	UBUS	7.95	23.58
tblVehicleEF	UBUS	12.35	1.62
tblVehicleEF	UBUS	1,799.80	948.77
tblVehicleEF	UBUS	153.89	40.19

tblVehicleEF	UBUS	3.87	0.09
tblVehicleEF	UBUS	12.22	0.33
tblVehicleEF	UBUS	0.49	0.06
tblVehicleEF	UBUS	0.01	5.5502e-003
tblVehicleEF	UBUS	0.04	8.8403e-004
tblVehicleEF	UBUS	1.4590e-003	3.4210e-004
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	1.3875e-003
tblVehicleEF	UBUS	0.04	8.1284e-004
tblVehicleEF	UBUS	1.3420e-003	3.1455e-004
tblVehicleEF	UBUS	0.02	4.7973e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.3920e-003	2.1762e-003
tblVehicleEF	UBUS	0.47	0.05
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.03	0.09
tblVehicleEF	UBUS	9.6710e-003	9.3884e-003
tblVehicleEF	UBUS	1.7640e-003	3.9774e-004
tblVehicleEF	UBUS	0.02	4.7973e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.3920e-003	2.1762e-003
tblVehicleEF	UBUS	1.95	3.11
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.12	0.10
tblVehicleEF	UBUS	1.44	3.04
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	7.88	23.58
tblVehicleEF	UBUS	14.60	1.89
tblVehicleEF	UBUS	1,799.80	1,641.14
tblVehicleEF	UBUS	153.89	23.33
tblVehicleEF	UBUS	4.12	0.30

tblVehicleEF	UBUS	12.31	0.23
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1621e-003
tblVehicleEF	UBUS	1.4590e-003	2.0957e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0573e-003
tblVehicleEF	UBUS	0.04	2.0488e-003
tblVehicleEF	UBUS	1.3420e-003	1.9270e-004
tblVehicleEF	UBUS	8.6090e-003	2.7594e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	4.2750e-003	1.1468e-003
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.13	0.10
tblVehicleEF	UBUS	9.6700e-003	6.3859e-003
tblVehicleEF	UBUS	1.8030e-003	2.3083e-004
tblVehicleEF	UBUS	8.6090e-003	2.7594e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	4.2750e-003	1.1468e-003
tblVehicleEF	UBUS	1.94	3.11
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.24	0.11
tblVehicleTrips	WD_TR	1.29	1.89
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,132,120.08	0.00
tblWater	OutdoorWaterUseRate	2,911,165.92	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

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	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Energy	0.0212	0.1929	0.1621	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.5294	231.5294	4.4400e-003	4.2400e-003	232.9053
Mobile	2.1619	1.5102	21.1272	0.0542	6.3571	0.0343	6.3914	1.6860	0.0317	1.7177		5,484.3835	5,484.3835	0.1769		5,488.8056
Total	**4.1419**	**1.7038**	**21.3706**	**0.0553**	**6.3571**	**0.0493**	**6.4063**	**1.6860**	**0.0466**	**1.7327**		**5,716.0868**	**5,716.0868**	**0.1818**	**4.2400e-003**	**5,721.8962**

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	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Energy	0.0162	0.1469	0.1234	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.2637	176.2637	3.3800e-003	3.2300e-003	177.3111
Mobile	2.1619	1.5102	21.1272	0.0542	6.3571	0.0343	6.3914	1.6860	0.0317	1.7177		5,484.3835	5,484.3835	0.1769		5,488.8056
Total	**4.1368**	**1.6578**	**21.3319**	**0.0550**	**6.3571**	**0.0458**	**6.4028**	**1.6860**	**0.0431**	**1.7292**		**5,660.8211**	**5,660.8211**	**0.1807**	**3.2300e-003**	**5,666.3021**

	ROG	NOx	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	**0.12**	**2.70**	**0.18**	**0.51**	**0.00**	**7.11**	**0.05**	**0.00**	**7.51**	**0.20**	**0.00**	**0.97**	**0.97**	**0.58**	**23.82**	**0.97**

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	2.1619	1.5102	21.1272	0.0542	6.3571	0.0343	6.3914	1.6860	0.0317	1.7177		5,484.3835	5,484.3835	0.1769		5,488.8056
Unmitigated	2.1619	1.5102	21.1272	0.0542	6.3571	0.0343	6.3914	1.6860	0.0317	1.7177		5,484.3835	5,484.3835	0.1769		5,488.8056

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	882.63	0.00	0.00	2,172,773	2,172,773
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	882.63	0.00	0.00	2,172,773	2,172,773

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
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	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
Elementary School	0.684746	0.046262	0.233507	0.020005	0.001363	0.000445	0.001569	0.006226	0.000000	0.000000	0.005707	0.000083	0.000086
Other Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Other Non-Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Parking Lot	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0162	0.1469	0.1234	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.2637	176.2637	3.3800e-003	3.2300e-003	177.3111
NaturalGas Unmitigated	0.0212	0.1929	0.1621	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.5294	231.5294	4.4400e-003	4.2400e-003	232.9053

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					
Elementary School	1968	0.0212	0.1929	0.1621	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.5294	231.5294	4.4400e-003	4.2400e-003	232.9053
Other 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
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
Parking Lot	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		**0.0212**	**0.1929**	**0.1621**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**231.5294**	**231.5294**	**4.4400e-003**	**4.2400e-003**	**232.9053**

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					
Elementary School	1.49824	0.0162	0.1469	0.1234	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.2637	176.2637	3.3800e-003	3.2300e-003	177.3111

Other 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
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
Parking Lot	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		**0.0162**	**0.1469**	**0.1234**	**8.8000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**		**176.2637**	**176.2637**	**3.3800e-003**	**3.2300e-003**	**177.3111**

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	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Unmitigated	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854

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	0.2115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.5600e-003	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Total	**1.9587**	**7.4000e-004**	**0.0813**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**		**0.1739**	**0.1739**	**4.6000e-004**		**0.1854**

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	0.2115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.5600e-003	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Total	**1.9587**	**7.4000e-004**	**0.0813**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**		**0.1739**	**0.1739**	**4.6000e-004**		**0.1854**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

Moreno Valley Elmentary School Operations - Riverside-South Coast County, Winter

Moreno Valley Elmentary School Operations

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	467.00	Student	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,460.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 SCE Sustainability Report

Land Use - accounts for change in number of students

Construction Phase -

Area Coating - accounts only for parking lot area

Energy Use -

Water And Wastewater - modeling assumes that students are already using water on other campuses before transferring to proposed elementary school

Solid Waste - modeling assumes that students are already generating solid waste on other campuses before transferring to proposed elementary school

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix - see assump file for adjusted fleet mix

Vehicle Trips - based on data received from EPD Solutions TIA

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	19654	2586
tblFleetMix	HHD	0.07	6.2260e-003
tblFleetMix	LDA	0.55	0.68
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	1.3630e-003
tblFleetMix	LHD2	4.9700e-003	4.4500e-004
tblFleetMix	MCY	4.5470e-003	5.7070e-003
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	9.6500e-004	8.6000e-005
tblFleetMix	MHD	0.02	1.5690e-003
tblFleetMix	OBUS	1.3970e-003	0.00
tblFleetMix	SBUS	9.3200e-004	8.3000e-005
tblFleetMix	UBUS	1.1600e-003	0.00
tblLandUse	LandUseSquareFeet	39,042.77	82,000.00
tblLandUse	LotAcreage	0.90	1.45
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	85.23	0.00
tblVehicleEF	HHD	1.36	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.09	3.7672e-007
tblVehicleEF	HHD	3.11	6.00
tblVehicleEF	HHD	0.45	0.30
tblVehicleEF	HHD	1.41	4.6546e-003
tblVehicleEF	HHD	6,423.61	1,112.99

tblVehicleEF	HHD	1,444.51	1,341.20
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	24.87	5.85
tblVehicleEF	HHD	2.31	2.81
tblVehicleEF	HHD	20.31	2.22
tblVehicleEF	HHD	0.01	2.7959e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.7000e-005	5.5904e-007
tblVehicleEF	HHD	0.01	2.6750e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7606e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.4000e-005	5.1401e-007
tblVehicleEF	HHD	7.3000e-005	2.9653e-006
tblVehicleEF	HHD	2.3460e-003	1.0989e-004
tblVehicleEF	HHD	0.80	0.44
tblVehicleEF	HHD	4.3000e-005	1.8146e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.5800e-004	5.0332e-004
tblVehicleEF	HHD	0.04	1.0937e-006
tblVehicleEF	HHD	0.06	9.2379e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	3.6965e-007
tblVehicleEF	HHD	7.3000e-005	2.9653e-006
tblVehicleEF	HHD	2.3460e-003	1.0989e-004
tblVehicleEF	HHD	0.92	0.50
tblVehicleEF	HHD	4.3000e-005	1.8146e-006
tblVehicleEF	HHD	0.10	0.08
tblVehicleEF	HHD	1.5800e-004	5.0332e-004

tblVehicleEF	HHD	0.04	1.1974e-006
tblVehicleEF	HHD	1.28	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.09	3.6184e-007
tblVehicleEF	HHD	2.26	5.87
tblVehicleEF	HHD	0.45	0.30
tblVehicleEF	HHD	1.34	4.3927e-003
tblVehicleEF	HHD	6,805.04	973.26
tblVehicleEF	HHD	1,444.51	1,342.40
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	25.67	4.85
tblVehicleEF	HHD	2.18	2.32
tblVehicleEF	HHD	20.31	2.55
tblVehicleEF	HHD	9.3550e-003	2.4336e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.7000e-005	5.5904e-007
tblVehicleEF	HHD	8.9510e-003	2.3283e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7606e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.4000e-005	5.1401e-007
tblVehicleEF	HHD	1.3900e-004	5.5852e-006
tblVehicleEF	HHD	2.6650e-003	1.2087e-004
tblVehicleEF	HHD	0.75	0.46
tblVehicleEF	HHD	8.2000e-005	3.7649e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.6100e-004	5.0985e-004
tblVehicleEF	HHD	0.04	1.0465e-006
tblVehicleEF	HHD	0.06	9.1356e-003

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.8000e-005	3.6601e-007
tblVehicleEF	HHD	1.3900e-004	5.5852e-006
tblVehicleEF	HHD	2.6650e-003	1.2087e-004
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tblVehicleEF	HHD	8.2000e-005	3.7649e-006
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tblVehicleEF	HHD	1.6100e-004	5.0985e-004
tblVehicleEF	HHD	0.04	1.1457e-006
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tblVehicleEF	HHD	0.03	2.2557e-003
tblVehicleEF	HHD	0.09	2.1187e-007
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tblVehicleEF	HHD	1.42	4.6050e-003
tblVehicleEF	HHD	5,896.87	1,113.28
tblVehicleEF	HHD	1,444.51	1,323.58
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	23.77	6.08
tblVehicleEF	HHD	2.30	2.76
tblVehicleEF	HHD	20.31	2.22
tblVehicleEF	HHD	0.01	3.4605e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	3.7000e-005	5.3117e-007
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tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7590e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	3.4000e-005	4.8839e-007

tblVehicleEF	HHD	5.5000e-005	3.0622e-006
tblVehicleEF	HHD	2.4470e-003	1.2294e-004
tblVehicleEF	HHD	0.86	0.41
tblVehicleEF	HHD	3.6000e-005	1.9621e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.6900e-004	5.3511e-004
tblVehicleEF	HHD	0.04	1.0855e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	3.8260e-007
tblVehicleEF	HHD	5.5000e-005	3.0622e-006
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tblVehicleEF	HHD	0.99	0.47
tblVehicleEF	HHD	3.6000e-005	1.9621e-006
tblVehicleEF	HHD	0.10	0.05
tblVehicleEF	HHD	1.6900e-004	5.3511e-004
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tblVehicleEF	LDA	3.6620e-003	2.0753e-003
tblVehicleEF	LDA	4.7760e-003	0.04
tblVehicleEF	LDA	0.54	0.60
tblVehicleEF	LDA	1.05	2.09
tblVehicleEF	LDA	245.52	256.38
tblVehicleEF	LDA	56.65	51.48
tblVehicleEF	LDA	0.05	0.03
tblVehicleEF	LDA	0.07	0.18
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.5153e-003
tblVehicleEF	LDA	2.2500e-003	1.7672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003

tblVehicleEF	LDA	1.4580e-003	1.3953e-003
tblVehicleEF	LDA	2.0690e-003	1.6249e-003
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	9.2080e-003	8.0166e-003
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.21
tblVehicleEF	LDA	2.4580e-003	2.4946e-003
tblVehicleEF	LDA	5.8400e-004	5.0939e-004
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDA	4.1530e-003	2.2102e-003
tblVehicleEF	LDA	4.1450e-003	0.04
tblVehicleEF	LDA	0.66	0.72
tblVehicleEF	LDA	0.93	1.75
tblVehicleEF	LDA	267.36	262.48
tblVehicleEF	LDA	56.65	50.97
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.06	0.15
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.5153e-003
tblVehicleEF	LDA	2.2500e-003	1.7672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4580e-003	1.3953e-003

tblVehicleEF	LDA	2.0690e-003	1.6249e-003
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tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.01	8.9448e-003
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.18
tblVehicleEF	LDA	2.6780e-003	2.5966e-003
tblVehicleEF	LDA	5.8200e-004	5.0444e-004
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	3.5320e-003	2.0955e-003
tblVehicleEF	LDA	4.9050e-003	0.05
tblVehicleEF	LDA	0.51	0.58
tblVehicleEF	LDA	1.08	2.07
tblVehicleEF	LDA	239.46	252.87
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tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.07	0.17
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.3706e-003
tblVehicleEF	LDA	2.2500e-003	1.8338e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4580e-003	1.2627e-003
tblVehicleEF	LDA	2.0690e-003	1.6862e-003

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tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	8.8850e-003	7.8721e-003
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.3970e-003	2.5015e-003
tblVehicleEF	LDA	5.8500e-004	5.2622e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDT1	0.01	4.7579e-003
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tblVehicleEF	LDT1	3.05	2.37
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tblVehicleEF	LDT1	70.39	61.80
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.19	0.29
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	1.9990e-003
tblVehicleEF	LDT1	3.5150e-003	2.3175e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.8394e-003
tblVehicleEF	LDT1	3.2320e-003	2.1309e-003
tblVehicleEF	LDT1	0.20	0.18

tblVehicleEF	LDT1	0.32	0.25
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.19	0.80
tblVehicleEF	LDT1	0.21	0.41
tblVehicleEF	LDT1	3.0750e-003	2.9441e-003
tblVehicleEF	LDT1	7.5800e-004	6.1160e-004
tblVehicleEF	LDT1	0.20	0.18
tblVehicleEF	LDT1	0.32	0.25
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.19	0.80
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tblVehicleEF	LDT1	0.18	0.21
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	1.9990e-003
tblVehicleEF	LDT1	3.5150e-003	2.3175e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.8394e-003
tblVehicleEF	LDT1	3.2320e-003	2.1309e-003
tblVehicleEF	LDT1	0.38	0.33
tblVehicleEF	LDT1	0.40	0.29

tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.19	0.78
tblVehicleEF	LDT1	0.18	0.35
tblVehicleEF	LDT1	3.3430e-003	3.0478e-003
tblVehicleEF	LDT1	7.5100e-004	6.0587e-004
tblVehicleEF	LDT1	0.38	0.33
tblVehicleEF	LDT1	0.40	0.29
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.19	0.78
tblVehicleEF	LDT1	0.20	0.38
tblVehicleEF	LDT1	0.01	6.5513e-003
tblVehicleEF	LDT1	0.02	0.08
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tblVehicleEF	LDT1	0.19	0.28
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	2.0657e-003
tblVehicleEF	LDT1	3.5150e-003	2.7558e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.9009e-003
tblVehicleEF	LDT1	3.2320e-003	2.5340e-003
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.36	0.28
tblVehicleEF	LDT1	0.11	0.12

tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.22	0.93
tblVehicleEF	LDT1	0.22	0.41
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tblVehicleEF	LDT1	7.5900e-004	6.4152e-004
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.36	0.28
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.22	0.93
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tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.28
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.5128e-003
tblVehicleEF	LDT2	2.3460e-003	1.7069e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.3922e-003
tblVehicleEF	LDT2	2.1570e-003	1.5695e-003
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tblVehicleEF	LDT2	0.11	0.13
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tblVehicleEF	LDT2	0.01	0.01

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tblVehicleEF	LDT2	0.09	0.31
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tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.41
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	5.8560e-003	3.5139e-003
tblVehicleEF	LDT2	5.6090e-003	0.05
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tblVehicleEF	LDT2	0.07	0.05
tblVehicleEF	LDT2	0.11	0.23
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.5128e-003
tblVehicleEF	LDT2	2.3460e-003	1.7069e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.3922e-003
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tblVehicleEF	LDT2	0.10	0.14
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.40

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tblVehicleEF	LDT2	3.7360e-003	3.2526e-003
tblVehicleEF	LDT2	8.0700e-004	6.5420e-004
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tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.10	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.40
tblVehicleEF	LDT2	0.08	0.29
tblVehicleEF	LDT2	4.9650e-003	3.5086e-003
tblVehicleEF	LDT2	6.6500e-003	0.07
tblVehicleEF	LDT2	0.67	0.82
tblVehicleEF	LDT2	1.42	2.66
tblVehicleEF	LDT2	333.62	318.70
tblVehicleEF	LDT2	78.65	68.95
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.28
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.4090e-003
tblVehicleEF	LDT2	2.3460e-003	1.8664e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.2971e-003
tblVehicleEF	LDT2	2.1570e-003	1.7161e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.47
tblVehicleEF	LDT2	0.09	0.31

tblVehicleEF	LDT2	3.3410e-003	3.1530e-003
tblVehicleEF	LDT2	8.1000e-004	6.8232e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.47
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LHD1	5.1810e-003	4.6549e-003
tblVehicleEF	LHD1	9.5070e-003	3.9149e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.88	0.66
tblVehicleEF	LHD1	2.26	0.92
tblVehicleEF	LHD1	9.26	9.43
tblVehicleEF	LHD1	602.20	628.02
tblVehicleEF	LHD1	29.86	10.01
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.06	1.53
tblVehicleEF	LHD1	0.96	0.29
tblVehicleEF	LHD1	9.7000e-004	1.0123e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	7.6030e-003
tblVehicleEF	LHD1	8.2900e-004	1.9818e-004
tblVehicleEF	LHD1	9.2800e-004	9.6849e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	7.2531e-003
tblVehicleEF	LHD1	7.6200e-004	1.8222e-004
tblVehicleEF	LHD1	3.7780e-003	2.5175e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8760e-003	1.3132e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.31	0.46
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	8.8505e-005
tblVehicleEF	LHD1	5.9030e-003	6.0168e-003
tblVehicleEF	LHD1	3.4200e-004	9.9030e-005
tblVehicleEF	LHD1	3.7780e-003	2.5175e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8760e-003	1.3132e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.46
tblVehicleEF	LHD1	0.27	0.08
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tblVehicleEF	LHD1	9.6980e-003	3.9716e-003
tblVehicleEF	LHD1	0.02	0.01
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tblVehicleEF	LHD1	2.15	0.87
tblVehicleEF	LHD1	9.26	9.16
tblVehicleEF	LHD1	602.20	618.63
tblVehicleEF	LHD1	29.86	9.95
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	1.94	0.70
tblVehicleEF	LHD1	0.93	0.26
tblVehicleEF	LHD1	9.7000e-004	1.0123e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01

tblVehicleEF	LHD1	0.01	7.6030e-003
tblVehicleEF	LHD1	8.2900e-004	1.9818e-004
tblVehicleEF	LHD1	9.2800e-004	9.6849e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	7.2531e-003
tblVehicleEF	LHD1	7.6200e-004	1.8222e-004
tblVehicleEF	LHD1	7.0590e-003	4.4753e-003
tblVehicleEF	LHD1	0.12	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.5660e-003	2.5194e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.32	0.46
tblVehicleEF	LHD1	0.23	0.07
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tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.5660e-003	2.5194e-003
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tblVehicleEF	LHD1	9.4900e-003	4.8833e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
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tblVehicleEF	LHD1	9.7000e-004	1.0052e-003
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tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.2900e-004	2.1896e-004
tblVehicleEF	LHD1	9.2800e-004	9.6173e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.6200e-004	2.0132e-004
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tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7110e-003	1.3783e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.34	0.49
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	9.1081e-005
tblVehicleEF	LHD1	5.9020e-003	6.1050e-003
tblVehicleEF	LHD1	3.4200e-004	1.0030e-004
tblVehicleEF	LHD1	3.3490e-003	2.6467e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7110e-003	1.3783e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.34	0.49

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD2	3.4600e-003	2.8303e-003
tblVehicleEF	LHD2	4.0020e-003	2.9784e-003
tblVehicleEF	LHD2	7.4040e-003	6.8488e-003
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tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.08	0.49
tblVehicleEF	LHD2	14.41	15.04
tblVehicleEF	LHD2	598.41	622.37
tblVehicleEF	LHD2	23.24	6.48
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	1.50	1.67
tblVehicleEF	LHD2	0.50	0.17
tblVehicleEF	LHD2	1.3120e-003	1.5452e-003
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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	3.7000e-004	9.3353e-005
tblVehicleEF	LHD2	1.2550e-003	1.4784e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	8.5835e-005
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tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.4200e-004	6.3045e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.3833e-004

tblVehicleEF	LHD2	5.8170e-003	5.9040e-003
tblVehicleEF	LHD2	2.5200e-004	6.4108e-005
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4200e-004	6.3045e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.11	0.04
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tblVehicleEF	LHD2	7.1500e-003	6.6333e-003
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tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.04	0.47
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tblVehicleEF	LHD2	1.41	0.79
tblVehicleEF	LHD2	0.48	0.15
tblVehicleEF	LHD2	1.3120e-003	1.5452e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	1.2550e-003	1.4784e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
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tblVehicleEF	LHD2	2.6530e-003	2.0861e-003
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tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.3950e-003	1.2081e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.3833e-004
tblVehicleEF	LHD2	5.8170e-003	5.9040e-003
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3950e-003	1.2081e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.11	0.04
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tblVehicleEF	LHD2	0.45	0.48
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tblVehicleEF	LHD2	14.41	15.04
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tblVehicleEF	LHD2	23.24	6.51
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tblVehicleEF	LHD2	0.09	0.09

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.0149e-004
tblVehicleEF	LHD2	1.2550e-003	1.4422e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	9.3316e-005
tblVehicleEF	LHD2	1.1040e-003	1.2006e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.2900e-004	6.5400e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.22
tblVehicleEF	LHD2	0.10	0.04
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.2900e-004	6.5400e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.22
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	MCY	0.42	0.35
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.14	19.16
tblVehicleEF	MCY	9.69	8.62
tblVehicleEF	MCY	166.26	207.70
tblVehicleEF	MCY	45.80	59.44

tblVehicleEF	MCY	1.12	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	2.2005e-003
tblVehicleEF	MCY	3.3680e-003	3.0777e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	2.0559e-003
tblVehicleEF	MCY	3.1720e-003	2.8938e-003
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.85	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.06	1.84
tblVehicleEF	MCY	2.0370e-003	2.1219e-003
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tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.85	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.63	2.63
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.24	2.00
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.14	0.21
tblVehicleEF	MCY	19.85	19.13
tblVehicleEF	MCY	9.10	7.90
tblVehicleEF	MCY	166.26	213.16
tblVehicleEF	MCY	45.80	57.68
tblVehicleEF	MCY	0.98	0.98

tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	2.2005e-003
tblVehicleEF	MCY	3.3680e-003	3.0777e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	2.0559e-003
tblVehicleEF	MCY	3.1720e-003	2.8938e-003
tblVehicleEF	MCY	3.36	2.74
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tblVehicleEF	MCY	2.10	1.72
tblVehicleEF	MCY	2.11	2.09
tblVehicleEF	MCY	0.56	1.79
tblVehicleEF	MCY	1.85	1.61
tblVehicleEF	MCY	2.0480e-003	2.1094e-003
tblVehicleEF	MCY	6.6100e-004	5.7079e-004
tblVehicleEF	MCY	3.36	2.74
tblVehicleEF	MCY	1.24	1.09
tblVehicleEF	MCY	2.10	1.72
tblVehicleEF	MCY	2.61	2.57
tblVehicleEF	MCY	0.56	1.79
tblVehicleEF	MCY	2.01	1.76
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.68	18.59
tblVehicleEF	MCY	9.65	8.41
tblVehicleEF	MCY	166.26	206.72
tblVehicleEF	MCY	45.80	60.18
tblVehicleEF	MCY	1.12	1.09
tblVehicleEF	MCY	0.31	0.26

tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	1.7610e-003
tblVehicleEF	MCY	3.3680e-003	2.8427e-003
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tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6471e-003
tblVehicleEF	MCY	3.1720e-003	2.6759e-003
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tblVehicleEF	MCY	1.04	1.06
tblVehicleEF	MCY	0.74	0.76
tblVehicleEF	MCY	2.12	2.11
tblVehicleEF	MCY	0.64	2.08
tblVehicleEF	MCY	2.07	1.80
tblVehicleEF	MCY	2.0300e-003	2.0457e-003
tblVehicleEF	MCY	6.7700e-004	5.9555e-004
tblVehicleEF	MCY	1.60	1.64
tblVehicleEF	MCY	1.04	1.06
tblVehicleEF	MCY	0.74	0.76
tblVehicleEF	MCY	2.62	2.60
tblVehicleEF	MCY	0.64	2.08
tblVehicleEF	MCY	2.26	1.96
tblVehicleEF	MDV	0.01	4.2459e-003
tblVehicleEF	MDV	0.02	0.07
tblVehicleEF	MDV	1.26	1.01
tblVehicleEF	MDV	2.88	3.15
tblVehicleEF	MDV	474.24	404.92
tblVehicleEF	MDV	107.24	81.42
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.27	0.36
tblVehicleEF	MDV	0.04	0.04

tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.6800e-003	1.6151e-003
tblVehicleEF	MDV	2.4130e-003	1.8074e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.4890e-003
tblVehicleEF	MDV	2.2190e-003	1.6619e-003
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	4.7510e-003	3.9042e-003
tblVehicleEF	MDV	1.1230e-003	8.0576e-004
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.24	0.45
tblVehicleEF	MDV	0.01	4.5049e-003
tblVehicleEF	MDV	0.01	0.07
tblVehicleEF	MDV	1.53	1.20
tblVehicleEF	MDV	2.54	2.62
tblVehicleEF	MDV	514.80	405.54
tblVehicleEF	MDV	107.24	80.68
tblVehicleEF	MDV	0.14	0.07
tblVehicleEF	MDV	0.26	0.28
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.6800e-003	1.6151e-003
tblVehicleEF	MDV	2.4130e-003	1.8074e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.4890e-003
tblVehicleEF	MDV	2.2190e-003	1.6619e-003
tblVehicleEF	MDV	0.21	0.20
tblVehicleEF	MDV	0.23	0.17
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	5.1610e-003	4.0094e-003
tblVehicleEF	MDV	1.1170e-003	7.9841e-004
tblVehicleEF	MDV	0.21	0.20
tblVehicleEF	MDV	0.23	0.17
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	0.01	4.6307e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.18	0.97
tblVehicleEF	MDV	2.94	3.12
tblVehicleEF	MDV	462.11	401.17
tblVehicleEF	MDV	107.24	85.93
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	0.27	0.36
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.6800e-003	1.4812e-003

tblVehicleEF	MDV	2.4130e-003	1.9435e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.3664e-003
tblVehicleEF	MDV	2.2190e-003	1.7873e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.54
tblVehicleEF	MDV	0.23	0.41
tblVehicleEF	MDV	4.6290e-003	3.9662e-003
tblVehicleEF	MDV	1.1240e-003	8.5036e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.54
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MH	0.03	3.1967e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.33	0.34
tblVehicleEF	MH	5.58	0.00
tblVehicleEF	MH	998.83	935.85
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.57	4.40
tblVehicleEF	MH	0.82	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.09
tblVehicleEF	MH	1.0280e-003	0.00

tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.08
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	9.0994e-003
tblVehicleEF	MH	6.7100e-004	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.03	3.1967e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.40	0.34
tblVehicleEF	MH	5.19	0.00
tblVehicleEF	MH	998.83	962.53
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.46	3.44
tblVehicleEF	MH	0.79	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.09
tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	0.06	0.06

tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.08
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	2.69	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	1.00	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.9080e-003	9.0994e-003
tblVehicleEF	MH	6.6400e-004	0.00
tblVehicleEF	MH	2.69	0.00
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tblVehicleEF	MH	0.12	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.03	3.3376e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.32	0.34
tblVehicleEF	MH	5.61	0.00
tblVehicleEF	MH	998.83	935.85
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.55	4.33
tblVehicleEF	MH	0.82	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2460e-003	4.0000e-003

tblVehicleEF	MH	0.04	0.13
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tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.50	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	8.8472e-003
tblVehicleEF	MH	6.7200e-004	0.00
tblVehicleEF	MH	1.48	0.00
tblVehicleEF	MH	0.10	0.00
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
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tblVehicleEF	MHD	3.1970e-003	7.6250e-004
tblVehicleEF	MHD	0.05	6.3003e-003
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tblVehicleEF	MHD	0.24	0.31
tblVehicleEF	MHD	5.47	0.82
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tblVehicleEF	MHD	1,062.94	946.77
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tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01

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tblVehicleEF	MHD	7.4900e-004	6.2966e-005
tblVehicleEF	MHD	9.3700e-004	2.4693e-004
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.4540e-003	5.9867e-003
tblVehicleEF	MHD	6.8900e-004	5.7895e-005
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	8.0100e-004	2.3495e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.33	0.04
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tblVehicleEF	MHD	0.01	8.9051e-003
tblVehicleEF	MHD	6.4200e-004	6.7496e-005
tblVehicleEF	MHD	1.6000e-003	4.3918e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	8.0100e-004	2.3495e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.36	0.04
tblVehicleEF	MHD	0.02	2.6064e-003
tblVehicleEF	MHD	3.2380e-003	7.7299e-004
tblVehicleEF	MHD	0.05	6.0926e-003
tblVehicleEF	MHD	0.25	0.27
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tblVehicleEF	MHD	5.23	0.77
tblVehicleEF	MHD	161.54	62.11

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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.7040e-003	6.2598e-003
tblVehicleEF	MHD	7.4900e-004	6.2966e-005
tblVehicleEF	MHD	7.9000e-004	2.1094e-004
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
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tblVehicleEF	MHD	6.8900e-004	5.7895e-005
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tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.5560e-003	4.6415e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	MHD	0.01	8.9051e-003
tblVehicleEF	MHD	6.3800e-004	6.6971e-005
tblVehicleEF	MHD	3.0890e-003	7.9064e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.5560e-003	4.6415e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.08

tblVehicleEF	MHD	0.35	0.04
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tblVehicleEF	MHD	0.05	6.9366e-003
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tblVehicleEF	MHD	0.24	0.31
tblVehicleEF	MHD	5.56	0.81
tblVehicleEF	MHD	140.03	69.60
tblVehicleEF	MHD	1,062.94	946.77
tblVehicleEF	MHD	54.61	7.04
tblVehicleEF	MHD	0.58	0.56
tblVehicleEF	MHD	0.88	1.57
tblVehicleEF	MHD	11.53	1.41
tblVehicleEF	MHD	1.1920e-003	1.7802e-003
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.7040e-003	0.05
tblVehicleEF	MHD	7.4900e-004	8.1884e-005
tblVehicleEF	MHD	1.1400e-003	1.7032e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.4540e-003	0.04
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tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	MHD	1.3480e-003	6.5962e-004

tblVehicleEF	MHD	0.01	8.9935e-003
tblVehicleEF	MHD	6.4300e-004	6.9681e-005
tblVehicleEF	MHD	1.1940e-003	4.6346e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	6.2900e-004	2.4773e-004
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tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	OBUS	1,092.94	1,366.52
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tblVehicleEF	OBUS	2.13	0.63
tblVehicleEF	OBUS	6.8000e-005	8.3538e-005
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	OBUS	8.4500e-004	2.0774e-004
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tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
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tblVehicleEF	OBUS	7.7700e-004	1.9101e-004

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tblVehicleEF	OBUS	0.05	0.29
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tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
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tblVehicleEF	OBUS	3.9250e-003	4.6821e-003
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tblVehicleEF	SBUS	0.02	0.04
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tblVehicleEF	SBUS	0.36	0.05

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tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	4.7600e-004	7.8425e-005
tblVehicleEF	SBUS	7.7170e-003	4.0272e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6910e-003	2.6470e-003
tblVehicleEF	SBUS	0.02	0.03

tblVehicleEF	SBUS	4.3700e-004	7.2109e-005
tblVehicleEF	SBUS	8.7430e-003	2.5872e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.92	0.41
tblVehicleEF	SBUS	4.2770e-003	1.3757e-003
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	0.01	0.06
tblVehicleEF	SBUS	0.30	0.04
tblVehicleEF	SBUS	0.01	3.5623e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2900e-004	6.5365e-005
tblVehicleEF	SBUS	8.7430e-003	2.5872e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.33	0.59
tblVehicleEF	SBUS	4.2770e-003	1.3757e-003
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.01	0.06
tblVehicleEF	SBUS	0.33	0.04
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	0.01	6.8632e-003
tblVehicleEF	SBUS	0.06	8.1927e-003
tblVehicleEF	SBUS	7.98	3.46
tblVehicleEF	SBUS	0.60	0.57
tblVehicleEF	SBUS	6.89	1.11
tblVehicleEF	SBUS	1,066.27	358.65
tblVehicleEF	SBUS	1,098.11	1,106.71
tblVehicleEF	SBUS	54.55	6.99
tblVehicleEF	SBUS	9.00	3.31
tblVehicleEF	SBUS	4.26	4.54
tblVehicleEF	SBUS	12.33	0.72
tblVehicleEF	SBUS	0.01	4.3886e-003

tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.7600e-004	4.6052e-005
tblVehicleEF	SBUS	0.01	4.1987e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6910e-003	2.6470e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	4.2343e-005
tblVehicleEF	SBUS	4.2260e-003	1.3983e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.2070e-003	7.6515e-004
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.37	0.05
tblVehicleEF	SBUS	0.01	3.4316e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6500e-004	6.9154e-005
tblVehicleEF	SBUS	4.2260e-003	1.3983e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.2070e-003	7.6515e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.44	3.3463e-003
tblVehicleEF	UBUS	0.08	0.05
tblVehicleEF	UBUS	7.89	23.58
tblVehicleEF	UBUS	14.42	1.90
tblVehicleEF	UBUS	1,799.80	1,641.14

tblVehicleEF	UBUS	153.89	40.90
tblVehicleEF	UBUS	4.15	0.30
tblVehicleEF	UBUS	12.31	0.23
tblVehicleEF	UBUS	0.49	0.06
tblVehicleEF	UBUS	0.01	5.5502e-003
tblVehicleEF	UBUS	0.04	8.8403e-004
tblVehicleEF	UBUS	1.4590e-003	3.4210e-004
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	1.3875e-003
tblVehicleEF	UBUS	0.04	8.1284e-004
tblVehicleEF	UBUS	1.3420e-003	3.1455e-004
tblVehicleEF	UBUS	9.4280e-003	2.7001e-003
tblVehicleEF	UBUS	0.11	0.02
tblVehicleEF	UBUS	4.6810e-003	1.0932e-003
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.13	0.10
tblVehicleEF	UBUS	9.6700e-003	9.3883e-003
tblVehicleEF	UBUS	1.8000e-003	4.0469e-004
tblVehicleEF	UBUS	9.4280e-003	2.7001e-003
tblVehicleEF	UBUS	0.11	0.02
tblVehicleEF	UBUS	4.6810e-003	1.0932e-003
tblVehicleEF	UBUS	1.94	3.11
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.23	0.11
tblVehicleEF	UBUS	1.44	3.4139e-003
tblVehicleEF	UBUS	0.08	0.04
tblVehicleEF	UBUS	7.95	23.58
tblVehicleEF	UBUS	12.35	1.62
tblVehicleEF	UBUS	1,799.80	948.77
tblVehicleEF	UBUS	153.89	40.19

tblVehicleEF	UBUS	3.87	0.09
tblVehicleEF	UBUS	12.22	0.33
tblVehicleEF	UBUS	0.49	0.06
tblVehicleEF	UBUS	0.01	5.5502e-003
tblVehicleEF	UBUS	0.04	8.8403e-004
tblVehicleEF	UBUS	1.4590e-003	3.4210e-004
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	1.3875e-003
tblVehicleEF	UBUS	0.04	8.1284e-004
tblVehicleEF	UBUS	1.3420e-003	3.1455e-004
tblVehicleEF	UBUS	0.02	4.7973e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.3920e-003	2.1762e-003
tblVehicleEF	UBUS	0.47	0.05
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.03	0.09
tblVehicleEF	UBUS	9.6710e-003	9.3884e-003
tblVehicleEF	UBUS	1.7640e-003	3.9774e-004
tblVehicleEF	UBUS	0.02	4.7973e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.3920e-003	2.1762e-003
tblVehicleEF	UBUS	1.95	3.11
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.12	0.10
tblVehicleEF	UBUS	1.44	3.04
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	7.88	23.58
tblVehicleEF	UBUS	14.60	1.89
tblVehicleEF	UBUS	1,799.80	1,641.14
tblVehicleEF	UBUS	153.89	23.33
tblVehicleEF	UBUS	4.12	0.30

tblVehicleEF	UBUS	12.31	0.23
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1621e-003
tblVehicleEF	UBUS	1.4590e-003	2.0957e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0573e-003
tblVehicleEF	UBUS	0.04	2.0488e-003
tblVehicleEF	UBUS	1.3420e-003	1.9270e-004
tblVehicleEF	UBUS	8.6090e-003	2.7594e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	4.2750e-003	1.1468e-003
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.13	0.10
tblVehicleEF	UBUS	9.6700e-003	6.3859e-003
tblVehicleEF	UBUS	1.8030e-003	2.3083e-004
tblVehicleEF	UBUS	8.6090e-003	2.7594e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	4.2750e-003	1.1468e-003
tblVehicleEF	UBUS	1.94	3.11
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.24	0.11
tblVehicleTrips	WD_TR	1.29	1.89
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,132,120.08	0.00
tblWater	OutdoorWaterUseRate	2,911,165.92	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

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	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Energy	0.0212	0.1929	0.1621	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.5294	231.5294	4.4400e-003	4.2400e-003	232.9053
Mobile	2.0644	1.9063	18.7963	0.0525	6.3571	0.0353	6.3924	1.6860	0.0327	1.7187		5,315.9271	5,315.9271	0.1909		5,320.7007
Total	**4.0443**	**2.0999**	**19.0396**	**0.0537**	**6.3571**	**0.0502**	**6.4073**	**1.6860**	**0.0477**	**1.7337**		**5,547.6304**	**5,547.6304**	**0.1958**	**4.2400e-003**	**5,553.7913**

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	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Energy	0.0162	0.1469	0.1234	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.2637	176.2637	3.3800e-003	3.2300e-003	177.3111
Mobile	2.0644	1.9063	18.7963	0.0525	6.3571	0.0353	6.3924	1.6860	0.0327	1.7187		5,315.9271	5,315.9271	0.1909		5,320.7007
Total	**4.0393**	**2.0539**	**19.0009**	**0.0534**	**6.3571**	**0.0467**	**6.4038**	**1.6860**	**0.0442**	**1.7302**		**5,492.3647**	**5,492.3647**	**0.1948**	**3.2300e-003**	**5,498.1972**

	ROG	NOx	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	**0.13**	**2.19**	**0.20**	**0.52**	**0.00**	**6.97**	**0.05**	**0.00**	**7.34**	**0.20**	**0.00**	**1.00**	**1.00**	**0.54**	**23.82**	**1.00**

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	2.0644	1.9063	18.7963	0.0525	6.3571	0.0353	6.3924	1.6860	0.0327	1.7187		5,315.9271	5,315.9271	0.1909		5,320.7007
Unmitigated	2.0644	1.9063	18.7963	0.0525	6.3571	0.0353	6.3924	1.6860	0.0327	1.7187		5,315.9271	5,315.9271	0.1909		5,320.7007

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	882.63	0.00	0.00	2,172,773	2,172,773
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	882.63	0.00	0.00	2,172,773	2,172,773

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
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	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
Elementary School	0.684746	0.046262	0.233507	0.020005	0.001363	0.000445	0.001569	0.006226	0.000000	0.000000	0.005707	0.000083	0.000086
Other Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Other Non-Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Parking Lot	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
NaturalGas Mitigated	0.0162	0.1469	0.1234	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.2637	176.2637	3.3800e-003	3.2300e-003	177.3111
NaturalGas Unmitigated	0.0212	0.1929	0.1621	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.5294	231.5294	4.4400e-003	4.2400e-003	232.9053

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					
Elementary School	1968	0.0212	0.1929	0.1621	1.1600e-003		0.0147	0.0147		0.0147	0.0147		231.5294	231.5294	4.4400e-003	4.2400e-003	232.9053
Other 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
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
Parking Lot	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		**0.0212**	**0.1929**	**0.1621**	**1.1600e-003**		**0.0147**	**0.0147**		**0.0147**	**0.0147**		**231.5294**	**231.5294**	**4.4400e-003**	**4.2400e-003**	**232.9053**

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					
Elementary School	1.49824	0.0162	0.1469	0.1234	8.8000e-004		0.0112	0.0112		0.0112	0.0112		176.2637	176.2637	3.3800e-003	3.2300e-003	177.3111
Other 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
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
Parking Lot	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		**0.0162**	**0.1469**	**0.1234**	**8.8000e-004**		**0.0112**	**0.0112**		**0.0112**	**0.0112**		**176.2637**	**176.2637**	**3.3800e-003**	**3.2300e-003**	**177.3111**

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	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Unmitigated	1.9587	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854

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	0.2115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.5600e-003	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854
Total	**1.9587**	**7.4000e-004**	**0.0813**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**		**0.1739**	**0.1739**	**4.6000e-004**		**0.1854**

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	0.2115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7396					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.5600e-003	7.4000e-004	0.0813	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1739	0.1739	4.6000e-004		0.1854

Total	**1.9587**	**7.4000e-004**	**0.0813**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**		**0.1739**	**0.1739**	**4.6000e-004**		**0.1854**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

Moreno Valley Elmentary School Operations - Riverside-South Coast County, Annual

Moreno Valley Elmentary School Operations

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	467.00	Student	1.45	82,000.00	0
Other Asphalt Surfaces	45.00	1000sqft	1.03	45,000.00	0
Other Non-Asphalt Surfaces	239.46	1000sqft	5.50	239,460.00	0
Parking Lot	43.10	1000sqft	0.99	43,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 SCE Sustainability Report

Land Use - accounts for change in number of students

Construction Phase -

Area Coating - accounts only for parking lot area

Energy Use -

Water And Wastewater - modeling assumes that students are already using water on other campuses before transferring to proposed elementary school

Solid Waste - modeling assumes that students are already generating solid waste on other campuses before transferring to proposed elementary school

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix - see assump file for adjusted fleet mix

Vehicle Trips - based on data received from EPD Solutions TIA

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	19654	2586
tblFleetMix	HHD	0.07	6.2260e-003
tblFleetMix	LDA	0.55	0.68
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	1.3630e-003
tblFleetMix	LHD2	4.9700e-003	4.4500e-004
tblFleetMix	MCY	4.5470e-003	5.7070e-003
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	9.6500e-004	8.6000e-005
tblFleetMix	MHD	0.02	1.5690e-003
tblFleetMix	OBUS	1.3970e-003	0.00
tblFleetMix	SBUS	9.3200e-004	8.3000e-005
tblFleetMix	UBUS	1.1600e-003	0.00
tblLandUse	LandUseSquareFeet	39,042.77	82,000.00
tblLandUse	LotAcreage	0.90	1.45
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	85.23	0.00
tblVehicleEF	HHD	1.36	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.09	3.7672e-007
tblVehicleEF	HHD	3.11	6.00
tblVehicleEF	HHD	0.45	0.30
tblVehicleEF	HHD	1.41	4.6546e-003
tblVehicleEF	HHD	6,423.61	1,112.99

tblVehicleEF	HHD	1,444.51	1,341.20
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	24.87	5.85
tblVehicleEF	HHD	2.31	2.81
tblVehicleEF	HHD	20.31	2.22
tblVehicleEF	HHD	0.01	2.7959e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.7000e-005	5.5904e-007
tblVehicleEF	HHD	0.01	2.6750e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7606e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.4000e-005	5.1401e-007
tblVehicleEF	HHD	7.3000e-005	2.9653e-006
tblVehicleEF	HHD	2.3460e-003	1.0989e-004
tblVehicleEF	HHD	0.80	0.44
tblVehicleEF	HHD	4.3000e-005	1.8146e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.5800e-004	5.0332e-004
tblVehicleEF	HHD	0.04	1.0937e-006
tblVehicleEF	HHD	0.06	9.2379e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	3.6965e-007
tblVehicleEF	HHD	7.3000e-005	2.9653e-006
tblVehicleEF	HHD	2.3460e-003	1.0989e-004
tblVehicleEF	HHD	0.92	0.50
tblVehicleEF	HHD	4.3000e-005	1.8146e-006
tblVehicleEF	HHD	0.10	0.08
tblVehicleEF	HHD	1.5800e-004	5.0332e-004

tblVehicleEF	HHD	0.04	1.1974e-006
tblVehicleEF	HHD	1.28	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.09	3.6184e-007
tblVehicleEF	HHD	2.26	5.87
tblVehicleEF	HHD	0.45	0.30
tblVehicleEF	HHD	1.34	4.3927e-003
tblVehicleEF	HHD	6,805.04	973.26
tblVehicleEF	HHD	1,444.51	1,342.40
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	25.67	4.85
tblVehicleEF	HHD	2.18	2.32
tblVehicleEF	HHD	20.31	2.55
tblVehicleEF	HHD	9.3550e-003	2.4336e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.7000e-005	5.5904e-007
tblVehicleEF	HHD	8.9510e-003	2.3283e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7606e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	3.4000e-005	5.1401e-007
tblVehicleEF	HHD	1.3900e-004	5.5852e-006
tblVehicleEF	HHD	2.6650e-003	1.2087e-004
tblVehicleEF	HHD	0.75	0.46
tblVehicleEF	HHD	8.2000e-005	3.7649e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.6100e-004	5.0985e-004
tblVehicleEF	HHD	0.04	1.0465e-006
tblVehicleEF	HHD	0.06	9.1356e-003

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.8000e-005	3.6601e-007
tblVehicleEF	HHD	1.3900e-004	5.5852e-006
tblVehicleEF	HHD	2.6650e-003	1.2087e-004
tblVehicleEF	HHD	0.87	0.52
tblVehicleEF	HHD	8.2000e-005	3.7649e-006
tblVehicleEF	HHD	0.10	0.08
tblVehicleEF	HHD	1.6100e-004	5.0985e-004
tblVehicleEF	HHD	0.04	1.1457e-006
tblVehicleEF	HHD	1.46	0.02
tblVehicleEF	HHD	0.03	2.2557e-003
tblVehicleEF	HHD	0.09	2.1187e-007
tblVehicleEF	HHD	4.28	6.14
tblVehicleEF	HHD	0.44	0.23
tblVehicleEF	HHD	1.42	4.6050e-003
tblVehicleEF	HHD	5,896.87	1,113.28
tblVehicleEF	HHD	1,444.51	1,323.58
tblVehicleEF	HHD	4.59	0.04
tblVehicleEF	HHD	23.77	6.08
tblVehicleEF	HHD	2.30	2.76
tblVehicleEF	HHD	20.31	2.22
tblVehicleEF	HHD	0.01	3.4605e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	3.7000e-005	5.3117e-007
tblVehicleEF	HHD	0.01	3.3108e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8650e-003	8.7590e-003
tblVehicleEF	HHD	0.01	0.03
tblVehicleEF	HHD	3.4000e-005	4.8839e-007

tblVehicleEF	HHD	5.5000e-005	3.0622e-006
tblVehicleEF	HHD	2.4470e-003	1.2294e-004
tblVehicleEF	HHD	0.86	0.41
tblVehicleEF	HHD	3.6000e-005	1.9621e-006
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	1.6900e-004	5.3511e-004
tblVehicleEF	HHD	0.04	1.0855e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	3.8260e-007
tblVehicleEF	HHD	5.5000e-005	3.0622e-006
tblVehicleEF	HHD	2.4470e-003	1.2294e-004
tblVehicleEF	HHD	0.99	0.47
tblVehicleEF	HHD	3.6000e-005	1.9621e-006
tblVehicleEF	HHD	0.10	0.05
tblVehicleEF	HHD	1.6900e-004	5.3511e-004
tblVehicleEF	HHD	0.04	1.1884e-006
tblVehicleEF	LDA	3.6620e-003	2.0753e-003
tblVehicleEF	LDA	4.7760e-003	0.04
tblVehicleEF	LDA	0.54	0.60
tblVehicleEF	LDA	1.05	2.09
tblVehicleEF	LDA	245.52	256.38
tblVehicleEF	LDA	56.65	51.48
tblVehicleEF	LDA	0.05	0.03
tblVehicleEF	LDA	0.07	0.18
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.5153e-003
tblVehicleEF	LDA	2.2500e-003	1.7672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003

tblVehicleEF	LDA	1.4580e-003	1.3953e-003
tblVehicleEF	LDA	2.0690e-003	1.6249e-003
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	9.2080e-003	8.0166e-003
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.21
tblVehicleEF	LDA	2.4580e-003	2.4946e-003
tblVehicleEF	LDA	5.8400e-004	5.0939e-004
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDA	4.1530e-003	2.2102e-003
tblVehicleEF	LDA	4.1450e-003	0.04
tblVehicleEF	LDA	0.66	0.72
tblVehicleEF	LDA	0.93	1.75
tblVehicleEF	LDA	267.36	262.48
tblVehicleEF	LDA	56.65	50.97
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.06	0.15
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.5153e-003
tblVehicleEF	LDA	2.2500e-003	1.7672e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4580e-003	1.3953e-003

tblVehicleEF	LDA	2.0690e-003	1.6249e-003
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.01	8.9448e-003
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.18
tblVehicleEF	LDA	2.6780e-003	2.5966e-003
tblVehicleEF	LDA	5.8200e-004	5.0444e-004
tblVehicleEF	LDA	0.09	0.10
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.20
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	3.5320e-003	2.0955e-003
tblVehicleEF	LDA	4.9050e-003	0.05
tblVehicleEF	LDA	0.51	0.58
tblVehicleEF	LDA	1.08	2.07
tblVehicleEF	LDA	239.46	252.87
tblVehicleEF	LDA	56.65	53.18
tblVehicleEF	LDA	0.04	0.03
tblVehicleEF	LDA	0.07	0.17
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.5830e-003	1.3706e-003
tblVehicleEF	LDA	2.2500e-003	1.8338e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.4580e-003	1.2627e-003
tblVehicleEF	LDA	2.0690e-003	1.6862e-003

tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	8.8850e-003	7.8721e-003
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.3970e-003	2.5015e-003
tblVehicleEF	LDA	5.8500e-004	5.2622e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDT1	0.01	4.7579e-003
tblVehicleEF	LDT1	0.02	0.06
tblVehicleEF	LDT1	1.32	1.37
tblVehicleEF	LDT1	3.05	2.37
tblVehicleEF	LDT1	305.87	304.11
tblVehicleEF	LDT1	70.39	61.80
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.19	0.29
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	1.9990e-003
tblVehicleEF	LDT1	3.5150e-003	2.3175e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.8394e-003
tblVehicleEF	LDT1	3.2320e-003	2.1309e-003
tblVehicleEF	LDT1	0.20	0.18

tblVehicleEF	LDT1	0.32	0.25
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.19	0.80
tblVehicleEF	LDT1	0.21	0.41
tblVehicleEF	LDT1	3.0750e-003	2.9441e-003
tblVehicleEF	LDT1	7.5800e-004	6.1160e-004
tblVehicleEF	LDT1	0.20	0.18
tblVehicleEF	LDT1	0.32	0.25
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.19	0.80
tblVehicleEF	LDT1	0.23	0.45
tblVehicleEF	LDT1	0.01	5.0321e-003
tblVehicleEF	LDT1	0.01	0.06
tblVehicleEF	LDT1	1.59	1.62
tblVehicleEF	LDT1	2.68	1.98
tblVehicleEF	LDT1	332.27	308.00
tblVehicleEF	LDT1	70.39	61.22
tblVehicleEF	LDT1	0.12	0.07
tblVehicleEF	LDT1	0.18	0.21
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	1.9990e-003
tblVehicleEF	LDT1	3.5150e-003	2.3175e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.8394e-003
tblVehicleEF	LDT1	3.2320e-003	2.1309e-003
tblVehicleEF	LDT1	0.38	0.33
tblVehicleEF	LDT1	0.40	0.29

tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.19	0.78
tblVehicleEF	LDT1	0.18	0.35
tblVehicleEF	LDT1	3.3430e-003	3.0478e-003
tblVehicleEF	LDT1	7.5100e-004	6.0587e-004
tblVehicleEF	LDT1	0.38	0.33
tblVehicleEF	LDT1	0.40	0.29
tblVehicleEF	LDT1	0.25	0.23
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.19	0.78
tblVehicleEF	LDT1	0.20	0.38
tblVehicleEF	LDT1	0.01	6.5513e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.24	1.33
tblVehicleEF	LDT1	3.11	2.35
tblVehicleEF	LDT1	298.00	300.45
tblVehicleEF	LDT1	70.39	64.83
tblVehicleEF	LDT1	0.12	0.12
tblVehicleEF	LDT1	0.19	0.28
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.3960e-003	2.0657e-003
tblVehicleEF	LDT1	3.5150e-003	2.7558e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.2060e-003	1.9009e-003
tblVehicleEF	LDT1	3.2320e-003	2.5340e-003
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.36	0.28
tblVehicleEF	LDT1	0.11	0.12

tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.22	0.93
tblVehicleEF	LDT1	0.22	0.41
tblVehicleEF	LDT1	2.9950e-003	2.9731e-003
tblVehicleEF	LDT1	7.5900e-004	6.4152e-004
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.36	0.28
tblVehicleEF	LDT1	0.11	0.12
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.22	0.93
tblVehicleEF	LDT1	0.24	0.45
tblVehicleEF	LDT2	5.1640e-003	3.3083e-003
tblVehicleEF	LDT2	6.4600e-003	0.06
tblVehicleEF	LDT2	0.71	0.85
tblVehicleEF	LDT2	1.39	2.68
tblVehicleEF	LDT2	342.68	322.21
tblVehicleEF	LDT2	78.65	66.75
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.28
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.5128e-003
tblVehicleEF	LDT2	2.3460e-003	1.7069e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.3922e-003
tblVehicleEF	LDT2	2.1570e-003	1.5695e-003
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.01

tblVehicleEF	LDT2	0.06	0.41
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	3.4320e-003	3.1520e-003
tblVehicleEF	LDT2	8.1000e-004	6.6058e-004
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.41
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	5.8560e-003	3.5139e-003
tblVehicleEF	LDT2	5.6090e-003	0.05
tblVehicleEF	LDT2	0.87	1.02
tblVehicleEF	LDT2	1.23	2.24
tblVehicleEF	LDT2	372.88	328.77
tblVehicleEF	LDT2	78.65	66.11
tblVehicleEF	LDT2	0.07	0.05
tblVehicleEF	LDT2	0.11	0.23
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.5128e-003
tblVehicleEF	LDT2	2.3460e-003	1.7069e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.3922e-003
tblVehicleEF	LDT2	2.1570e-003	1.5695e-003
tblVehicleEF	LDT2	0.13	0.16
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.10	0.14
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.40

tblVehicleEF	LDT2	0.08	0.27
tblVehicleEF	LDT2	3.7360e-003	3.2526e-003
tblVehicleEF	LDT2	8.0700e-004	6.5420e-004
tblVehicleEF	LDT2	0.13	0.16
tblVehicleEF	LDT2	0.13	0.14
tblVehicleEF	LDT2	0.10	0.14
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.40
tblVehicleEF	LDT2	0.08	0.29
tblVehicleEF	LDT2	4.9650e-003	3.5086e-003
tblVehicleEF	LDT2	6.6500e-003	0.07
tblVehicleEF	LDT2	0.67	0.82
tblVehicleEF	LDT2	1.42	2.66
tblVehicleEF	LDT2	333.62	318.70
tblVehicleEF	LDT2	78.65	68.95
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.11	0.28
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6000e-003	1.4090e-003
tblVehicleEF	LDT2	2.3460e-003	1.8664e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.4710e-003	1.2971e-003
tblVehicleEF	LDT2	2.1570e-003	1.7161e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.47
tblVehicleEF	LDT2	0.09	0.31

tblVehicleEF	LDT2	3.3410e-003	3.1530e-003
tblVehicleEF	LDT2	8.1000e-004	6.8232e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.47
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LHD1	5.1810e-003	4.6549e-003
tblVehicleEF	LHD1	9.5070e-003	3.9149e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.88	0.66
tblVehicleEF	LHD1	2.26	0.92
tblVehicleEF	LHD1	9.26	9.43
tblVehicleEF	LHD1	602.20	628.02
tblVehicleEF	LHD1	29.86	10.01
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.06	1.53
tblVehicleEF	LHD1	0.96	0.29
tblVehicleEF	LHD1	9.7000e-004	1.0123e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	7.6030e-003
tblVehicleEF	LHD1	8.2900e-004	1.9818e-004
tblVehicleEF	LHD1	9.2800e-004	9.6849e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	7.2531e-003
tblVehicleEF	LHD1	7.6200e-004	1.8222e-004
tblVehicleEF	LHD1	3.7780e-003	2.5175e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8760e-003	1.3132e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.31	0.46
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	8.8505e-005
tblVehicleEF	LHD1	5.9030e-003	6.0168e-003
tblVehicleEF	LHD1	3.4200e-004	9.9030e-005
tblVehicleEF	LHD1	3.7780e-003	2.5175e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8760e-003	1.3132e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.46
tblVehicleEF	LHD1	0.27	0.08
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tblVehicleEF	LHD1	9.6980e-003	3.9716e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.89	0.67
tblVehicleEF	LHD1	2.15	0.87
tblVehicleEF	LHD1	9.26	9.16
tblVehicleEF	LHD1	602.20	618.63
tblVehicleEF	LHD1	29.86	9.95
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	1.94	0.70
tblVehicleEF	LHD1	0.93	0.26
tblVehicleEF	LHD1	9.7000e-004	1.0123e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01

tblVehicleEF	LHD1	0.01	7.6030e-003
tblVehicleEF	LHD1	8.2900e-004	1.9818e-004
tblVehicleEF	LHD1	9.2800e-004	9.6849e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	7.2531e-003
tblVehicleEF	LHD1	7.6200e-004	1.8222e-004
tblVehicleEF	LHD1	7.0590e-003	4.4753e-003
tblVehicleEF	LHD1	0.12	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.5660e-003	2.5194e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.32	0.46
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	8.8505e-005
tblVehicleEF	LHD1	5.9030e-003	6.0169e-003
tblVehicleEF	LHD1	3.4000e-004	9.8426e-005
tblVehicleEF	LHD1	7.0590e-003	4.4753e-003
tblVehicleEF	LHD1	0.12	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.5660e-003	2.5194e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.32	0.46
tblVehicleEF	LHD1	0.25	0.08
tblVehicleEF	LHD1	5.1810e-003	4.6596e-003
tblVehicleEF	LHD1	9.4900e-003	4.8833e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.88	0.66
tblVehicleEF	LHD1	2.26	0.91
tblVehicleEF	LHD1	9.26	9.43

tblVehicleEF	LHD1	602.20	628.03
tblVehicleEF	LHD1	29.86	10.14
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.04	1.51
tblVehicleEF	LHD1	0.95	0.29
tblVehicleEF	LHD1	9.7000e-004	1.0052e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.2900e-004	2.1896e-004
tblVehicleEF	LHD1	9.2800e-004	9.6173e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5490e-003	2.5151e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	7.6200e-004	2.0132e-004
tblVehicleEF	LHD1	3.3490e-003	2.6467e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7110e-003	1.3783e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.34	0.49
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	9.1081e-005
tblVehicleEF	LHD1	5.9020e-003	6.1050e-003
tblVehicleEF	LHD1	3.4200e-004	1.0030e-004
tblVehicleEF	LHD1	3.3490e-003	2.6467e-003
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7110e-003	1.3783e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.34	0.49

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD2	3.4600e-003	2.8303e-003
tblVehicleEF	LHD2	4.0020e-003	2.9784e-003
tblVehicleEF	LHD2	7.4040e-003	6.8488e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.08	0.49
tblVehicleEF	LHD2	14.41	15.04
tblVehicleEF	LHD2	598.41	622.37
tblVehicleEF	LHD2	23.24	6.48
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	1.50	1.67
tblVehicleEF	LHD2	0.50	0.17
tblVehicleEF	LHD2	1.3120e-003	1.5452e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	9.3353e-005
tblVehicleEF	LHD2	1.2550e-003	1.4784e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	8.5835e-005
tblVehicleEF	LHD2	1.4050e-003	1.1714e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.4200e-004	6.3045e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.3833e-004

tblVehicleEF	LHD2	5.8170e-003	5.9040e-003
tblVehicleEF	LHD2	2.5200e-004	6.4108e-005
tblVehicleEF	LHD2	1.4050e-003	1.1714e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4200e-004	6.3045e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	3.4600e-003	2.8359e-003
tblVehicleEF	LHD2	4.0450e-003	2.9983e-003
tblVehicleEF	LHD2	7.1500e-003	6.6333e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.04	0.47
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tblVehicleEF	LHD2	598.41	613.38
tblVehicleEF	LHD2	23.24	6.44
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	1.41	0.79
tblVehicleEF	LHD2	0.48	0.15
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tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	9.3353e-005
tblVehicleEF	LHD2	1.2550e-003	1.4784e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	8.5835e-005

tblVehicleEF	LHD2	2.6530e-003	2.0861e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.3950e-003	1.2081e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.3833e-004
tblVehicleEF	LHD2	5.8170e-003	5.9040e-003
tblVehicleEF	LHD2	2.5100e-004	6.3770e-005
tblVehicleEF	LHD2	2.6530e-003	2.0861e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3950e-003	1.2081e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.21
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	3.4600e-003	2.8401e-003
tblVehicleEF	LHD2	3.9920e-003	3.5196e-003
tblVehicleEF	LHD2	7.4470e-003	7.6034e-003
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tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.09	0.49
tblVehicleEF	LHD2	14.41	15.04
tblVehicleEF	LHD2	598.41	622.37
tblVehicleEF	LHD2	23.24	6.51
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	1.48	1.65
tblVehicleEF	LHD2	0.50	0.16
tblVehicleEF	LHD2	1.3120e-003	1.5074e-003
tblVehicleEF	LHD2	0.09	0.09

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.0149e-004
tblVehicleEF	LHD2	1.2550e-003	1.4422e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.7000e-003	2.7367e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	9.3316e-005
tblVehicleEF	LHD2	1.1040e-003	1.2006e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.2900e-004	6.5400e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.22
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4345e-004
tblVehicleEF	LHD2	5.8170e-003	5.9879e-003
tblVehicleEF	LHD2	2.5200e-004	6.4421e-005
tblVehicleEF	LHD2	1.1040e-003	1.2006e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.2900e-004	6.5400e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.22
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	MCY	0.42	0.35
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.14	19.16
tblVehicleEF	MCY	9.69	8.62
tblVehicleEF	MCY	166.26	207.70
tblVehicleEF	MCY	45.80	59.44

tblVehicleEF	MCY	1.12	1.13
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	2.2005e-003
tblVehicleEF	MCY	3.3680e-003	3.0777e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	2.0559e-003
tblVehicleEF	MCY	3.1720e-003	2.8938e-003
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.85	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.06	1.84
tblVehicleEF	MCY	2.0370e-003	2.1219e-003
tblVehicleEF	MCY	6.7700e-004	5.8822e-004
tblVehicleEF	MCY	1.69	1.43
tblVehicleEF	MCY	0.85	0.79
tblVehicleEF	MCY	0.92	0.76
tblVehicleEF	MCY	2.63	2.63
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.24	2.00
tblVehicleEF	MCY	0.42	0.34
tblVehicleEF	MCY	0.14	0.21
tblVehicleEF	MCY	19.85	19.13
tblVehicleEF	MCY	9.10	7.90
tblVehicleEF	MCY	166.26	213.16
tblVehicleEF	MCY	45.80	57.68
tblVehicleEF	MCY	0.98	0.98

tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	2.2005e-003
tblVehicleEF	MCY	3.3680e-003	3.0777e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	2.0559e-003
tblVehicleEF	MCY	3.1720e-003	2.8938e-003
tblVehicleEF	MCY	3.36	2.74
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tblVehicleEF	MCY	2.10	1.72
tblVehicleEF	MCY	2.11	2.09
tblVehicleEF	MCY	0.56	1.79
tblVehicleEF	MCY	1.85	1.61
tblVehicleEF	MCY	2.0480e-003	2.1094e-003
tblVehicleEF	MCY	6.6100e-004	5.7079e-004
tblVehicleEF	MCY	3.36	2.74
tblVehicleEF	MCY	1.24	1.09
tblVehicleEF	MCY	2.10	1.72
tblVehicleEF	MCY	2.61	2.57
tblVehicleEF	MCY	0.56	1.79
tblVehicleEF	MCY	2.01	1.76
tblVehicleEF	MCY	0.42	0.31
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.68	18.59
tblVehicleEF	MCY	9.65	8.41
tblVehicleEF	MCY	166.26	206.72
tblVehicleEF	MCY	45.80	60.18
tblVehicleEF	MCY	1.12	1.09
tblVehicleEF	MCY	0.31	0.26

tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8240e-003	1.7610e-003
tblVehicleEF	MCY	3.3680e-003	2.8427e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6471e-003
tblVehicleEF	MCY	3.1720e-003	2.6759e-003
tblVehicleEF	MCY	1.60	1.64
tblVehicleEF	MCY	1.04	1.06
tblVehicleEF	MCY	0.74	0.76
tblVehicleEF	MCY	2.12	2.11
tblVehicleEF	MCY	0.64	2.08
tblVehicleEF	MCY	2.07	1.80
tblVehicleEF	MCY	2.0300e-003	2.0457e-003
tblVehicleEF	MCY	6.7700e-004	5.9555e-004
tblVehicleEF	MCY	1.60	1.64
tblVehicleEF	MCY	1.04	1.06
tblVehicleEF	MCY	0.74	0.76
tblVehicleEF	MCY	2.62	2.60
tblVehicleEF	MCY	0.64	2.08
tblVehicleEF	MCY	2.26	1.96
tblVehicleEF	MDV	0.01	4.2459e-003
tblVehicleEF	MDV	0.02	0.07
tblVehicleEF	MDV	1.26	1.01
tblVehicleEF	MDV	2.88	3.15
tblVehicleEF	MDV	474.24	404.92
tblVehicleEF	MDV	107.24	81.42
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.27	0.36
tblVehicleEF	MDV	0.04	0.04

tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.6800e-003	1.6151e-003
tblVehicleEF	MDV	2.4130e-003	1.8074e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.4890e-003
tblVehicleEF	MDV	2.2190e-003	1.6619e-003
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	4.7510e-003	3.9042e-003
tblVehicleEF	MDV	1.1230e-003	8.0576e-004
tblVehicleEF	MDV	0.11	0.11
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.47
tblVehicleEF	MDV	0.24	0.45
tblVehicleEF	MDV	0.01	4.5049e-003
tblVehicleEF	MDV	0.01	0.07
tblVehicleEF	MDV	1.53	1.20
tblVehicleEF	MDV	2.54	2.62
tblVehicleEF	MDV	514.80	405.54
tblVehicleEF	MDV	107.24	80.68
tblVehicleEF	MDV	0.14	0.07
tblVehicleEF	MDV	0.26	0.28
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.6800e-003	1.6151e-003
tblVehicleEF	MDV	2.4130e-003	1.8074e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.4890e-003
tblVehicleEF	MDV	2.2190e-003	1.6619e-003
tblVehicleEF	MDV	0.21	0.20
tblVehicleEF	MDV	0.23	0.17
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	5.1610e-003	4.0094e-003
tblVehicleEF	MDV	1.1170e-003	7.9841e-004
tblVehicleEF	MDV	0.21	0.20
tblVehicleEF	MDV	0.23	0.17
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.11	0.46
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	0.01	4.6307e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.18	0.97
tblVehicleEF	MDV	2.94	3.12
tblVehicleEF	MDV	462.11	401.17
tblVehicleEF	MDV	107.24	85.93
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	0.27	0.36
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.6800e-003	1.4812e-003

tblVehicleEF	MDV	2.4130e-003	1.9435e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.5490e-003	1.3664e-003
tblVehicleEF	MDV	2.2190e-003	1.7873e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.54
tblVehicleEF	MDV	0.23	0.41
tblVehicleEF	MDV	4.6290e-003	3.9662e-003
tblVehicleEF	MDV	1.1240e-003	8.5036e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.54
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MH	0.03	3.1967e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.33	0.34
tblVehicleEF	MH	5.58	0.00
tblVehicleEF	MH	998.83	935.85
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.57	4.40
tblVehicleEF	MH	0.82	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.09
tblVehicleEF	MH	1.0280e-003	0.00

tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.08
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	9.0994e-003
tblVehicleEF	MH	6.7100e-004	0.00
tblVehicleEF	MH	1.47	0.00
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tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.03	3.1967e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.40	0.34
tblVehicleEF	MH	5.19	0.00
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tblVehicleEF	MH	1.46	3.44
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tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.09
tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	0.06	0.06

tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.08
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	2.69	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	1.00	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.9080e-003	9.0994e-003
tblVehicleEF	MH	6.6400e-004	0.00
tblVehicleEF	MH	2.69	0.00
tblVehicleEF	MH	0.09	0.00
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tblVehicleEF	MH	0.12	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.03	3.3376e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.32	0.34
tblVehicleEF	MH	5.61	0.00
tblVehicleEF	MH	998.83	935.85
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.55	4.33
tblVehicleEF	MH	0.82	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2460e-003	4.0000e-003

tblVehicleEF	MH	0.04	0.13
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tblVehicleEF	MH	1.48	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.50	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	8.8472e-003
tblVehicleEF	MH	6.7200e-004	0.00
tblVehicleEF	MH	1.48	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.50	0.00
tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
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tblVehicleEF	MHD	0.24	0.31
tblVehicleEF	MHD	5.47	0.82
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tblVehicleEF	MHD	1,062.94	946.77
tblVehicleEF	MHD	54.61	6.82
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tblVehicleEF	MHD	0.01	0.01

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tblVehicleEF	MHD	9.3700e-004	2.4693e-004
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.4540e-003	5.9867e-003
tblVehicleEF	MHD	6.8900e-004	5.7895e-005
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tblVehicleEF	MHD	8.0100e-004	2.3495e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.33	0.04
tblVehicleEF	MHD	1.4660e-003	5.9200e-004
tblVehicleEF	MHD	0.01	8.9051e-003
tblVehicleEF	MHD	6.4200e-004	6.7496e-005
tblVehicleEF	MHD	1.6000e-003	4.3918e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	8.0100e-004	2.3495e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.36	0.04
tblVehicleEF	MHD	0.02	2.6064e-003
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tblVehicleEF	MHD	0.05	6.0926e-003
tblVehicleEF	MHD	0.25	0.27
tblVehicleEF	MHD	0.25	0.31
tblVehicleEF	MHD	5.23	0.77
tblVehicleEF	MHD	161.54	62.11

tblVehicleEF	MHD	1,062.94	937.27
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.7040e-003	6.2598e-003
tblVehicleEF	MHD	7.4900e-004	6.2966e-005
tblVehicleEF	MHD	7.9000e-004	2.1094e-004
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.4540e-003	5.9867e-003
tblVehicleEF	MHD	6.8900e-004	5.7895e-005
tblVehicleEF	MHD	3.0890e-003	7.9064e-004
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tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.5560e-003	4.6415e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.5560e-003	4.6415e-004
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tblVehicleEF	MHD	0.02	0.08

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tblVehicleEF	MHD	0.05	6.9366e-003
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tblVehicleEF	MHD	0.01	0.01
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tblVehicleEF	MHD	1.1400e-003	1.7032e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.4540e-003	0.04
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tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	MHD	1.1940e-003	4.6346e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	6.2900e-004	2.4773e-004
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tblVehicleEF	MHD	0.02	0.08
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tblVehicleEF	OBUS	2.13	0.63
tblVehicleEF	OBUS	6.8000e-005	8.3538e-005
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.0070e-003	5.8955e-003
tblVehicleEF	OBUS	8.4500e-004	2.0774e-004
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tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
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tblVehicleEF	OBUS	7.7700e-004	1.9101e-004

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9200e-004	2.0312e-004
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tblVehicleEF	OBUS	0.05	0.31
tblVehicleEF	OBUS	0.36	0.13
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tblVehicleEF	SBUS	9.5680e-003	4.9865e-003
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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	4.7600e-004	7.8425e-005
tblVehicleEF	SBUS	9.1540e-003	4.7708e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6910e-003	2.6470e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	7.2109e-005
tblVehicleEF	SBUS	4.8460e-003	1.4762e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.2980e-003	7.3947e-004
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.36	0.05

tblVehicleEF	SBUS	0.01	3.4700e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.5900e-004	6.8767e-005
tblVehicleEF	SBUS	4.8460e-003	1.4762e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.33	0.59
tblVehicleEF	SBUS	2.2980e-003	7.3947e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.39	0.05
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	0.01	9.8725e-003
tblVehicleEF	SBUS	0.05	7.7208e-003
tblVehicleEF	SBUS	7.71	3.36
tblVehicleEF	SBUS	0.61	0.58
tblVehicleEF	SBUS	4.73	0.78
tblVehicleEF	SBUS	1,189.12	372.63
tblVehicleEF	SBUS	1,098.11	1,100.47
tblVehicleEF	SBUS	54.55	6.61
tblVehicleEF	SBUS	9.72	3.64
tblVehicleEF	SBUS	4.05	5.31
tblVehicleEF	SBUS	12.29	0.68
tblVehicleEF	SBUS	8.0660e-003	4.2093e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	4.7600e-004	7.8425e-005
tblVehicleEF	SBUS	7.7170e-003	4.0272e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6910e-003	2.6470e-003
tblVehicleEF	SBUS	0.02	0.03

tblVehicleEF	SBUS	4.3700e-004	7.2109e-005
tblVehicleEF	SBUS	8.7430e-003	2.5872e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.92	0.41
tblVehicleEF	SBUS	4.2770e-003	1.3757e-003
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	0.01	0.06
tblVehicleEF	SBUS	0.30	0.04
tblVehicleEF	SBUS	0.01	3.5623e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2900e-004	6.5365e-005
tblVehicleEF	SBUS	8.7430e-003	2.5872e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.33	0.59
tblVehicleEF	SBUS	4.2770e-003	1.3757e-003
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.01	0.06
tblVehicleEF	SBUS	0.33	0.04
tblVehicleEF	SBUS	0.82	0.09
tblVehicleEF	SBUS	0.01	6.8632e-003
tblVehicleEF	SBUS	0.06	8.1927e-003
tblVehicleEF	SBUS	7.98	3.46
tblVehicleEF	SBUS	0.60	0.57
tblVehicleEF	SBUS	6.89	1.11
tblVehicleEF	SBUS	1,066.27	358.65
tblVehicleEF	SBUS	1,098.11	1,106.71
tblVehicleEF	SBUS	54.55	6.99
tblVehicleEF	SBUS	9.00	3.31
tblVehicleEF	SBUS	4.26	4.54
tblVehicleEF	SBUS	12.33	0.72
tblVehicleEF	SBUS	0.01	4.3886e-003

tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.7600e-004	4.6052e-005
tblVehicleEF	SBUS	0.01	4.1987e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.6910e-003	2.6470e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	4.2343e-005
tblVehicleEF	SBUS	4.2260e-003	1.3983e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	0.93	0.41
tblVehicleEF	SBUS	2.2070e-003	7.6515e-004
tblVehicleEF	SBUS	0.10	0.10
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.37	0.05
tblVehicleEF	SBUS	0.01	3.4316e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6500e-004	6.9154e-005
tblVehicleEF	SBUS	4.2260e-003	1.3983e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.34	0.59
tblVehicleEF	SBUS	2.2070e-003	7.6515e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.08
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.44	3.3463e-003
tblVehicleEF	UBUS	0.08	0.05
tblVehicleEF	UBUS	7.89	23.58
tblVehicleEF	UBUS	14.42	1.90
tblVehicleEF	UBUS	1,799.80	1,641.14

tblVehicleEF	UBUS	153.89	40.90
tblVehicleEF	UBUS	4.15	0.30
tblVehicleEF	UBUS	12.31	0.23
tblVehicleEF	UBUS	0.49	0.06
tblVehicleEF	UBUS	0.01	5.5502e-003
tblVehicleEF	UBUS	0.04	8.8403e-004
tblVehicleEF	UBUS	1.4590e-003	3.4210e-004
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	1.3875e-003
tblVehicleEF	UBUS	0.04	8.1284e-004
tblVehicleEF	UBUS	1.3420e-003	3.1455e-004
tblVehicleEF	UBUS	9.4280e-003	2.7001e-003
tblVehicleEF	UBUS	0.11	0.02
tblVehicleEF	UBUS	4.6810e-003	1.0932e-003
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.13	0.10
tblVehicleEF	UBUS	9.6700e-003	9.3883e-003
tblVehicleEF	UBUS	1.8000e-003	4.0469e-004
tblVehicleEF	UBUS	9.4280e-003	2.7001e-003
tblVehicleEF	UBUS	0.11	0.02
tblVehicleEF	UBUS	4.6810e-003	1.0932e-003
tblVehicleEF	UBUS	1.94	3.11
tblVehicleEF	UBUS	0.02	0.08
tblVehicleEF	UBUS	1.23	0.11
tblVehicleEF	UBUS	1.44	3.4139e-003
tblVehicleEF	UBUS	0.08	0.04
tblVehicleEF	UBUS	7.95	23.58
tblVehicleEF	UBUS	12.35	1.62
tblVehicleEF	UBUS	1,799.80	948.77
tblVehicleEF	UBUS	153.89	40.19

tblVehicleEF	UBUS	3.87	0.09
tblVehicleEF	UBUS	12.22	0.33
tblVehicleEF	UBUS	0.49	0.06
tblVehicleEF	UBUS	0.01	5.5502e-003
tblVehicleEF	UBUS	0.04	8.8403e-004
tblVehicleEF	UBUS	1.4590e-003	3.4210e-004
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	1.3875e-003
tblVehicleEF	UBUS	0.04	8.1284e-004
tblVehicleEF	UBUS	1.3420e-003	3.1455e-004
tblVehicleEF	UBUS	0.02	4.7973e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.3920e-003	2.1762e-003
tblVehicleEF	UBUS	0.47	0.05
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.03	0.09
tblVehicleEF	UBUS	9.6710e-003	9.3884e-003
tblVehicleEF	UBUS	1.7640e-003	3.9774e-004
tblVehicleEF	UBUS	0.02	4.7973e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	9.3920e-003	2.1762e-003
tblVehicleEF	UBUS	1.95	3.11
tblVehicleEF	UBUS	0.02	0.07
tblVehicleEF	UBUS	1.12	0.10
tblVehicleEF	UBUS	1.44	3.04
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	7.88	23.58
tblVehicleEF	UBUS	14.60	1.89
tblVehicleEF	UBUS	1,799.80	1,641.14
tblVehicleEF	UBUS	153.89	23.33
tblVehicleEF	UBUS	4.12	0.30

tblVehicleEF	UBUS	12.31	0.23
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.1621e-003
tblVehicleEF	UBUS	1.4590e-003	2.0957e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.0573e-003
tblVehicleEF	UBUS	0.04	2.0488e-003
tblVehicleEF	UBUS	1.3420e-003	1.9270e-004
tblVehicleEF	UBUS	8.6090e-003	2.7594e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	4.2750e-003	1.1468e-003
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.13	0.10
tblVehicleEF	UBUS	9.6700e-003	6.3859e-003
tblVehicleEF	UBUS	1.8030e-003	2.3083e-004
tblVehicleEF	UBUS	8.6090e-003	2.7594e-003
tblVehicleEF	UBUS	0.13	0.02
tblVehicleEF	UBUS	4.2750e-003	1.1468e-003
tblVehicleEF	UBUS	1.94	3.11
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	1.24	0.11
tblVehicleTrips	WD_TR	1.29	1.89
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,132,120.08	0.00
tblWater	OutdoorWaterUseRate	2,911,165.92	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

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	0.3570	9.0000e-005	0.0102	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0197	0.0197	5.0000e-005	0.0000	0.0210
Energy	3.8700e-003	0.0352	0.0296	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	178.7496	178.7496	8.8100e-003	2.3700e-003	179.6770
Mobile	0.2558	0.2544	2.5130	6.7900e-003	0.8127	4.4500e-003	0.8171	0.2158	4.1100e-003	0.2199	0.0000	633.5229	633.5229	0.0216	0.0000	634.0635
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6167**	**0.2897**	**2.5527**	**7.0000e-003**	**0.8127**	**7.1700e-003**	**0.8198**	**0.2158**	**6.8300e-003**	**0.2226**	**0.0000**	**812.2922**	**812.2922**	**0.0305**	**2.3700e-003**	**813.7615**

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	0.3570	9.0000e-005	0.0102	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0197	0.0197	5.0000e-005	0.0000	0.0210
Energy	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	153.9519	153.9519	7.7300e-003	2.0200e-003	154.7469
Mobile	0.2558	0.2544	2.5130	6.7900e-003	0.8127	4.4500e-003	0.8171	0.2158	4.1100e-003	0.2199	0.0000	633.5229	633.5229	0.0216	0.0000	634.0635
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6158**	**0.2813**	**2.5456**	**6.9500e-003**	**0.8127**	**6.5300e-003**	**0.8192**	**0.2158**	**6.1900e-003**	**0.2220**	**0.0000**	**787.4945**	**787.4945**	**0.0294**	**2.0200e-003**	**788.8315**

	ROG	NOx	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	**0.15**	**2.90**	**0.28**	**0.71**	**0.00**	**8.93**	**0.08**	**0.00**	**9.37**	**0.29**	**0.00**	**3.05**	**3.05**	**3.54**	**14.77**	**3.06**

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	0.2558	0.2544	2.5130	6.7900e-003	0.8127	4.4500e-003	0.8171	0.2158	4.1100e-003	0.2199	0.0000	633.5229	633.5229	0.0216	0.0000	634.0635
Unmitigated	0.2558	0.2544	2.5130	6.7900e-003	0.8127	4.4500e-003	0.8171	0.2158	4.1100e-003	0.2199	0.0000	633.5229	633.5229	0.0216	0.0000	634.0635

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	882.63	0.00	0.00	2,172,773	2,172,773
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	882.63	0.00	0.00	2,172,773	2,172,773

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
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	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
Elementary School	0.684746	0.046262	0.233507	0.020005	0.001363	0.000445	0.001569	0.006226	0.000000	0.000000	0.005707	0.000083	0.000086

Other Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Other Non-Asphalt Surfaces	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Parking Lot	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	124.7695	124.7695	7.1700e-003	1.4800e-003	125.3911
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	140.4174	140.4174	8.0700e-003	1.6700e-003	141.1169
NaturalGas Mitigated	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.1824	29.1824	5.6000e-004	5.4000e-004	29.3558
NaturalGas Unmitigated	3.8700e-003	0.0352	0.0296	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3323	38.3323	7.3000e-004	7.0000e-004	38.5601

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					
Elementary School	718320	3.8700e-003	0.0352	0.0296	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.3323	38.3323	7.3000e-004	7.0000e-004	38.5601
Other 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
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
Parking Lot	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		**3.8700e-003**	**0.0352**	**0.0296**	**2.1000e-004**		**2.6800e-003**	**2.6800e-003**		**2.6800e-003**	**2.6800e-003**	**0.0000**	**38.3323**	**38.3323**	**7.3000e-004**	**7.0000e-004**	**38.5601**

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					
Elementary School	546858	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003	0.0000	29.1824	29.1824	5.6000e-004	5.4000e-004	29.3558
Other 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
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
Parking Lot	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		**2.9500e-003**	**0.0268**	**0.0225**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**	**0.0000**	**29.1824**	**29.1824**	**5.6000e-004**	**5.4000e-004**	**29.3558**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	598600	136.9658	7.8700e-003	1.6300e-003	137.6481
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	15085	3.4516	2.0000e-004	4.0000e-005	3.4688
Total		**140.4174**	**8.0700e-003**	**1.6700e-003**	**141.1169**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	530212	121.3179	6.9700e-003	1.4400e-003	121.9223

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	15085	3.4516	2.0000e-004	4.0000e-005	3.4688
Total		**124.7695**	**7.1700e-003**	**1.4800e-003**	**125.3911**

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	0.3570	9.0000e-005	0.0102	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0197	0.0197	5.0000e-005	0.0000	0.0210
Unmitigated	0.3570	9.0000e-005	0.0102	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0197	0.0197	5.0000e-005	0.0000	0.0210

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	0.0386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3175					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.4000e-004	9.0000e-005	0.0102	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0197	0.0197	5.0000e-005	0.0000	0.0210
Total	**0.3570**	**9.0000e-005**	**0.0102**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0197**	**0.0197**	**5.0000e-005**	**0.0000**	**0.0210**

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	0.0386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3175					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.4000e-004	9.0000e-005	0.0102	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.0197	0.0197	5.0000e-005	0.0000	0.0210
Total	**0.3570**	**9.0000e-005**	**0.0102**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.0197**	**0.0197**	**5.0000e-005**	**0.0000**	**0.0210**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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			
Elementary School	0	0.0000	0.0000	0.0000	0.0000

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	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			
Elementary School	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	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

Construction Localized Significance Thresholds: Demolition and Demolition Haul

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	1.00	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**118**	Graders	0.5	0.0625			0
CO	**602**	Dozers	0.5	0.0625	8	2	1
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	1.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	212	335	652
	1	118	148	212	335	652
		118	148	212	335	652
CO	1	602	887	1746	4359	17640
	1	602	887	1746	4359	17640
		602	887	1746	4359	17640
PM10	1	4	12	30	67	178
	1	4	12	30	67	178
		4	12	30	67	178
PM2.5	1	3	4	8	20	86
	1	3	4	8	20	86
		3	4	8	20	86

Perris Valley

1.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	118	148	212	335	652
CO	602	887	1746	4359	17640
PM10	4	12	30	67	178
PM2.5	3	4	8	20	86

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	1	24	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Site Preparation

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	3.50	25	82	8.97

Source Receptor	Perris Valley
Distance (meters)	25
NOx	**220**
CO	**1,230**
PM10	**9.99**
PM2.5	**6.00**

Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Tractors	0.5	0.0625	8	3	1.5
Graders	0.5	0.0625			0
Dozers	0.5	0.0625	8	4	2
Scrapers	1	0.125			0
				Acres	3.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	3	203	234	302	415	716
	4	237	268	340	452	748
		220	251	321	434	732
CO	3	1114	1567	2634	4711	20141
	4	1346	1873	3035	4285	21336
		1230	1720	2835	4498	20739
PM10	3	9	27	45	82	193
	4	11	33	52	89	200
		10	30	49	86	197
PM2.5	3	5	7	12	26	96
	4	7	9	14	28	100
		6	8	13	27	98

Perris Valley

3.50 Acres

	25	**50**	**100**	**200**	**500**
NOx	220	251	321	434	732
CO	1230	1720	2835	4498	20739
PM10	10	30	49	86	197
PM2.5	6	8	13	27	98

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	3	24	4
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Grading and Grading Soil Haul

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	2.50	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625	8	3	1.5
NOx	**187**	Graders	0.5	0.0625	8	1	0.5
CO	**999**	Dozers	0.5	0.0625	8	1	0.5
PM10	**8.00**	Scrapers	1	0.125			0
PM2.5	**4.67**					**Acres**	2.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	2	170	200	264	379	684
	3	203	234	302	415	716
		187	217	283	397	700
CO	2	883	1262	2232	5136	18947
	3	1114	1567	2634	4711	20141
		999	1415	2433	4923	19544
PM10	2	7	20	38	75	186
	3	9	27	45	82	193
		8	23	42	79	190
PM2.5	2	4	6	10	23	91
	3	5	7	12	26	96
		5	7	11	24	93

Perris Valley

2.50 Acres

	25	**50**	**100**	**200**	**500**
NOx	187	217	283	397	700
CO	999	1415	2433	4923	19544
PM10	8	23	42	79	190
PM2.5	5	7	11	24	93

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	2	24	3
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Utilities Trenching

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	0.00	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**118**	Graders	0.5	0.0625			0
CO	**602**	Dozers	0.5	0.0625			0
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	0.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	212	335	652
	1	118	148	212	335	652
		118	148	212	335	652
CO	1	602	887	1746	4359	17640
	1	602	887	1746	4359	17640
		602	887	1746	4359	17640
PM10	1	4	12	30	67	178
	1	4	12	30	67	178
		4	12	30	67	178
PM2.5	1	3	4	8	20	86
	1	3	4	8	20	86
		3	4	8	20	86

Perris Valley

0.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	118	148	212	335	652
CO	602	887	1746	4359	17640
PM10	4	12	30	67	178
PM2.5	3	4	8	20	86

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	1	24	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Building Construction

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	1.31	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625	7	3	1.3125
NOx	**134**	Graders	0.5	0.0625			0
CO	**690**	Dozers	0.5	0.0625			0
PM10	**4.94**	Scrapers	1	0.125			0
PM2.5	**3.31**					**Acres**	1.31

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	212	335	652
	2	170	200	264	379	684
		134	164	228	349	662
CO	1	602	887	1746	4359	17640
	2	883	1262	2232	5136	18947
		690	1004	1898	4602	18048
PM10	1	4	12	30	67	178
	2	7	20	38	75	186
		5	15	33	70	181
PM2.5	1	3	4	8	20	86
	2	4	6	10	23	91
		3	5	9	21	88

Perris Valley

1.31 Acres

	25	**50**	**100**	**200**	**500**
NOx	134	164	228	349	662
CO	690	1004	1898	4602	18048
PM10	5	15	33	70	181
PM2.5	3	5	9	21	88

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	1	24	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Paving

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	0.00	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**118**	Graders	0.5	0.0625			0
CO	**602**	Dozers	0.5	0.0625			0
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	0.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	212	335	652
	1	118	148	212	335	652
		118	148	212	335	652
CO	1	602	887	1746	4359	17640
	1	602	887	1746	4359	17640
		602	887	1746	4359	17640
PM10	1	4	12	30	67	178
	1	4	12	30	67	178
		4	12	30	67	178
PM2.5	1	3	4	8	20	86
	1	3	4	8	20	86
		3	4	8	20	86

Perris Valley

0.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	118	148	212	335	652
CO	602	887	1746	4359	17640
PM10	4	12	30	67	178
PM2.5	3	4	8	20	86

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	1	24	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Architectural Coating

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	0.00	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**118**	Graders	0.5	0.0625			0
CO	**602**	Dozers	0.5	0.0625			0
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	0.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	212	335	652
	1	118	148	212	335	652
		118	148	212	335	652
CO	1	602	887	1746	4359	17640
	1	602	887	1746	4359	17640
		602	887	1746	4359	17640
PM10	1	4	12	30	67	178
	1	4	12	30	67	178
		4	12	30	67	178
PM2.5	1	3	4	8	20	86
	1	3	4	8	20	86
		3	4	8	20	86

Perris Valley

0.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	118	148	212	335	652
CO	602	887	1746	4359	17640
PM10	4	12	30	67	178
PM2.5	3	4	8	20	86

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	1	24	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Finishing and Landscaping

SRA No.	Acres	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Project site Acreage Disturbed
24	0.00	25	82	8.97

Source Receptor	Perris Valley	Equipment	Acres/8-hr Day		Daily hours	Equipment Used	Acres
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	**118**	Graders	0.5	0.0625			0
CO	**602**	Dozers	0.5	0.0625			0
PM10	**4.00**	Scrapers	1	0.125			0
PM2.5	**3.00**					**Acres**	0.00

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	118	148	212	335	652
	1	118	148	212	335	652
		118	148	212	335	652
CO	1	602	887	1746	4359	17640
	1	602	887	1746	4359	17640
		602	887	1746	4359	17640
PM10	1	4	12	30	67	178
	1	4	12	30	67	178
		4	12	30	67	178
PM2.5	1	3	4	8	20	86
	1	3	4	8	20	86
		3	4	8	20	86

Perris Valley

0.00 Acres

	25	**50**	**100**	**200**	**500**
NOx	118	148	212	335	652
CO	602	887	1746	4359	17640
PM10	4	12	30	67	178
PM2.5	3	4	8	20	86

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
24	1	24	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Appendix B Cultural Resources Evaluation

Appendices

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April 26, 2019

Alice Houseworth, AICP
Senior Associate
Placeworks
3 MacArthur Place, Suite 1100
Santa Ana, California 92707

Cultural Resources Evaluation Letter Report for the Proposed Elementary School at Nason Street and Bay Avenue, City of Moreno Valley, Riverside County, California

Dear Ms. Houseworth,

This Letter Report summarizes a cultural resources study conducted by ASM Affiliates, Inc. (ASM) for the Proposed Elementary School at Nason Street and Bay Avenue Project (Project), located in the City of Moreno Valley, Riverside County, California. Both an archaeological and architectural history survey were conducted for the study. The Project area contains three buildings constructed more than 45 years ago; as such, their potential for historical significance must be considered in compliance with the California Environmental Quality Act (CEQA). The property within this Project area is proposed for development, and this Letter Report was requested as part of a Baseline Study currently being prepared for the Project. This Letter Report provides the results of an archaeological survey and an evaluation of the three buildings on the parcel for eligibility for listing in the California Register of Historical Resources (CRHR) and as historical resources under CEQA. The results of this analysis will assist the Moreno Valley Unified School District (District) in determining whether the Project has the potential to cause significant impacts as defined by CEQA.

This Letter Report is divided into the following sections: Introduction, Methodology, Archival Research, Cultural and Environmental Setting, Brief History of Moreno Valley, Survey Results, Eligibility Criteria, Evaluation of Eligibility, Impacts Assessment, Recommended Mitigation, and Conclusion. References are included as Attachment A; figures and photographs as Attachment B; a summary of the California Historical Resources Information System (CHRIS) Eastern Information Center (EIC) records search as Attachment C; correspondence with the Native American Heritage Commission (NAHC) and Native American tribal contacts in Attachment D; Department of Parks and Recreation (DPR) 523 site record forms are included as Attachment E; and a Paleontological Resource Assessment conducted for the Project by the San Diego Natural History Museum PaleoServices division is provided as Attachment F.

INTRODUCTION

The approximately 9-acre District-owned Project parcel is located in the northern portion of the City of Moreno Valley (Figures 1-3). It is bordered to the west by Nason Street, to the south by Bay Avenue, to the east by agricultural land, and to the north by an existing church property. The Project site is located on Assessor Parcel No. (APN) 488-190-034 (Figure 4). The majority of the parcel is vacant, with an extant residential complex at the northwestern corner. The address for the existing residence is at 13636 Nason Street. The Project site is located in an area zoned residential and agricultural with small housing developments located to the south and northeast of the property.

Proposed work at the site will include construction of a new elementary school consisting of approximately 32 classrooms in a two-story building, outdoor recreation areas, and staff and visitor parking areas, along with associated underground utilities. Specific details on planned earthwork at the site are currently undefined.

ASM prepared this report to assess the potential for cultural resources to be impacted by the Project. In support of this effort, ASM conducted a pedestrian archaeological survey of the vacant portions of the parcel and evaluated the historical and architectural significance of the extant structures located in the northwestern corner of the parcel. These consist of a house and two ancillary buildings, all of which are proposed for demolition.

None of the buildings have previously been listed on the CRHR or the National Register of Historic Places (NRHP), nor are they listed as a California Point of Historical Interest or California Historical Landmark. The City of Moreno Valley has a process for recognizing landmarks or structures of merit in its municipal code but does not have established criteria for evaluating structures for eligibility. The city had not conducted a comprehensive survey to identify historic resources, nor has a historic context statement been developed for Moreno Valley. In this Letter Report, ASM evaluates the extant buildings located within the proposed Project Site for their eligibility for designation on the local level as individual resources and as potential contributors to a historic district.

Moreno Valley has an Environmental and Historical Preservation Board tasked with consideration of matters of environmental concern and particularly those pertaining to the use, manufacture, production, transportation and disposal of hazardous materials and waste within or affecting the City. The Board also considers matters pertaining to the preservation of the City's heritage and cultures, including the designation of landmarks and review of all restoration, rehabilitation, alteration and demolition projects in preservation areas

METHODOLOGY

ASM began the cultural resources study by requesting a records search from the EIC on December 24, 2018, the results of which were received on January 31, 2019. A search of the Sacred Lands File (SLF) held by the NAHC was requested on January 17, 2018; the response from the NAHC was received on January 24, 2018. Letters of inquiry were sent to each of the potentially interested or affiliated tribal entities provided in the NAHC response on January 25, 2019.

ASM conducted both an archaeological and architectural history field survey on February 7, 2019, to determine the presence of any previously undocumented cultural resources. The reconnaissance-level field survey was conducted by ASM Architectural Historian Laura Taylor Kung, M.A., and ASM Senior Archaeologist Sherri Andrews, M.A., RPA.

For the archaeological survey, all accessible portions of the parcel were walked in transects spaced approximately 15 m apart and oriented primarily north/south. Documentation of the buildings included multiple photographs (exterior only) from the public right-of-way and within the site to document the resources and their setting. The buildings' plans, architectural features, condition, and historical integrity were noted. In order to determine whether the buildings might be associated with a potential historic district, a brief windshield survey of the surrounding neighborhood and select comparable areas of Moreno Valley was conducted to identify comparable properties. The DPR 523 site record forms prepared to document this field survey are provided in Attachment E.

ASM conducted archival research to develop a general historic context for Moreno Valley and site-specific information. Although the original building permits were not located, the Riverside County Building and

Safety Department retained some permits related to alterations to the home. A chain of title search was conducted and city directories, newspapers, and historic photograph collections were consulted to gather information about the owners and any known occupants. ASM also consulted historic maps and aerial photos to further understand the development of the area over time (Historicaerials.com; aerial images for 1966, 1967, 1978, 1996, 1997, 2002, 2005, 2009, 2010, 2012; topographic maps for 1954, 1958, 1963, 1965, 1968, 1976, 1980, 1985, 2012, 2015).

In evaluating the currently extant buildings within the Project area, ASM considered a number of factors relevant to making a recommendation of eligibility, including:

- the history of Moreno Valley;
- the history of the buildings' construction, use, and association with local development in Moreno Valley;
- the history of the surrounding community and the buildings' relationship to that community;
- the buildings' association with important people or events;
- whether the buildings are the work of a master architect, craftsman, artist, or landscaper;
- whether the buildings are representative of a particular style or method of construction; and
- whether the buildings have undergone structural alterations over the years, the extent to which such alterations have compromised their historical integrity, and the current condition of the properties.

ARCHIVAL RESEARCH

EIC Records Search

The EIC records search was conducted to determine whether the Project area has been previously subject to survey as well as the presence or absence of cultural resources previously documented within the Project area. The search included all records and documents on file with the EIC, as well as the National Register of Historic Places, the Office of Historic Preservation (OHP) Historic Property Directory, and the OHP Archaeological Determinations of Eligibility list.

A total of 34 previous projects were identified as a result of the records search (Table 1), one of which encompasses the Project area and one of which is directly adjacent the eastern edge of the Project parcel. The study that encompassed the Project area (RI-2171) involved pedestrian survey of previously unsurveyed areas within Moreno Valley. The current Project area was covered during this study by archaeologists using 30-meter transect intervals; no cultural resources were documented. One survey covering an area just to the north of the Project (LA-06710) was negative for cultural resources.

Table 1. Previous Cultural Resource Projects Conducted within the 1-Mile Records Search Radius

Report No. (RI-)	Year	Author(s) / Affiliation	Title
00002	1953	Malcolm J. Rogers / San Diego Museum of Man	Miscellaneous Field Notes – Riverside County. San Diego Museum of Man

Report No. (RI-)	Year	Author(s) / Affiliation	Title
00133	1974	Thomas F. King, Mary A. Brown, Gerrit Fenenga, and Claudia Nissley / Archaeological Research Unit, U.C. Riverside	Archaeological Impact Evaluation: Southern California Edison Company's Devers-Vista 220kV Transmission Line, Riverside County, California
00137	1974	James F. O'Conell, Philip J. Wilke, Thomas F. King, and Carol L. Mix / Archaeological Research Unit, U.C. Riverside	Perris Reservoir Archaeology, Late Prehistoric Demographic Change in Southeastern California
00161	1975	Roberta S. Greenwood / Greenwood and Associates	Paleontological, Archaeological, Historical, and Cultural Resources, West Coast-Midwest Pipeline Project, Long Beach to Colorado River
00182	1975	Richard A. Weaver / Archaeological Research Unit, U.C. Riverside	Environmental Impact Evaluation: Archaeology of Brodiaea Avenue, Pl 984, Water Systems Addition, Riverside County, California
00414	1978	Thomas Holcomb / Archaeological Research Unit, U.C. Riverside	Environmental Impact Evaluation: Archaeological Assessment of Two Portions of Land in Moreno Valley, Riverside County, California
00742	1979	Philip J. Wilke / Archaeological Research Unit, U.C. Riverside	Environmental Impact Evaluation: An Archaeological Assessment of 17.64 Acres Considered for Change of Zone (CZ 2707), Southeast of Sunnymead, Riverside County, California
00912	1984	Jean A. Salpas	Environmental Impact Evaluation: Archaeological Assessment of General Plan Amendment 218 Sunnymead, California
01850	1986	Scientific Resource Surveys, Inc.	Cultural Resource Reassessment for Tract 19861, Moreno Valley, Riverside County, California
01851	1984	Scientific Resource Surveys, Inc.	Cultural Resource Survey Report for Tract 19861, Near Moreno, Riverside County, California
01852	1988	Michael E. Macko / The Keith Companies	Draft Report of an Archaeological Records Check and Literature Review for the Stoneridge Center Specific Plan No. 211, City of Moreno Valley, Riverside County, California
01853	1990	Christopher E. Drover	Environmental Impact Evaluation: The Stoneridge Project Riverside County, California
01955	1977	Rod Heller, Tim Tetherow, and C. White / Wirth Associates	An Overview of the Sundesert Nuclear Project Transmission System Cultural Resource Investigation
01979	1986	Joanne M. Mack and G. A. Clopine / Clopine and Associates	Archaeological Assessment of Assessors Parcel # 483-340-005 and 009, Vicinity of Oliver Street and Alessandro Blvd., Moreno Valley, Riverside County, California
02021	1986	Christopher E. Drover	An Archaeological Assessment of Tract 20464, Moreno Valley, California
02049	1986	Daniel F. McCarthy / Archaeological Research Unit, U.C. Riverside	An Archaeological Assessment of 27 Acres of Land Located in the City of Moreno Valley, Riverside County, California
02105	1987	Christopher E. Drover	An Archaeological Assessment of the A.L.T.A. Specific Plan, Moreno Valley, California
02171	1987	Daniel F. McCarthy / Archaeological Research Unit, U.C. Riverside	Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California
02172	1990	Christopher E. Drover	Environmental Impact Evaluation: Highway 60 Corridor Study, Moreno Valley, Riverside County, California
03604	1992	Carleton S. Jones / California State University, Long Beach	The Development of Cultural Complexity Among the Luiseno: A Thesis Presented to the Department of Anthropology, California State University, Long Beach in Partial Fulfillment of the Requirements for the Degree, Master of Arts
04397	2000	Daniel F. McCarthy	Archaeological Survey of Parcel Map 29700, Moreno Valley, Riverside County, California
04607	2002	Carol R. Demack / Archaeological Resource Management Corporation	Phase I Archaeological Assessment of 72-Acre Parcel in the City of Moreno Valley, Riverside County, California

Report No. (RI-)	Year	Author(s) / Affiliation	Title
04762	1990	Leo R. Barker and Ann E. Huston, editors / Division of National Register Programs National Park Service	Death Valley to Deadwood; Kennecott to Cripple Creek. *Proceedings of the Historic Mining Conference*, January 23-27, 1989, Death Valley National Monument
05088	2005	Cultural Systems Research, Inc.	Ethnographic Overview Inland Feeder Pipeline Project
06751	2006	Virginia Austerman / LSA Associates, Inc.	Archaeological Monitoring Program: Stoneridge Ranch, City of Moreno Valley, Riverside County, California
06754	2006	Mary Robbins-Wade / Affinis	Cultural Resources Inventory, Lowe's Moreno Valley Project, Moreno Valley, Riverside County, California
06886	2006	Tetra Tech, Inc.	An Archaeological Survey of Approximately 20 Acres (AP 477-180-012 and -013) for the Tentative Tract 34397 Moreno Valley Project Located Southeast of Cottonwood Avenue and Nason Street, Moreno Valley, Riverside County, California 92555
06980	2006	Pamela Daly / PCR Services Corporation	Historic Resources Assessment Report: 27913 Cottonwood Avenue, Moreno Valley, California 92555, APN:477-190-032
07333	2006	Wayne H. Bonner and Marnie Aislin-Kay / Michael Brandman Associates	Letter Report: Cultural Resource Records Search and Site Visit Results for T-Mobile Candidate IE 24092C, (14375 Nason Street) 14375 Nason Street, Moreno Valley, Riverside County, California
07335	2007	Tetra Tech, Inc.	An Archaeological Survey of 10-Acres (APN 486-280-001) Southeast of the Intersection of Alessandro Boulevard and Lasselle Street, Moreno Valley, Riverside County, California 92555
08154	2008	Wayne H. Bonner and Marnie Aislin-Kay / Michael Brandman Associates	Letter Report: Cultural Resource Records Search and Site Visit Results for Royal Street Communications Candidate
08235	2001	James E. Workman, Indian Rock Art Specialist	Cupules A Type of Petroglyphic Rock Art. A Study of the Pitted Boulders in the San Jacinto Wildlife Area and the Lake Perris State Recreational Area
08266	2009	Madeleine Bray / ESA	Negative Survey of Approximately 25 Acres for the Riverside County Regional Medical Center Expansion Project, City of Moreno Valley, County of Riverside, California
08358	2010	Deidre Encarnacion and Daniel Ballester / CRM Tech	Identification and Evaluation of Historic Properties: Moreno Valley Medical Village Project, Assessor's Parcel Nos. 486-290-001 and -002, City of Moreno Valley, Riverside County, California
08802	2012	Bai "Tom" Tang, Michael Hogan, Deirdre Encarnacion, and Daniel Ballester / CRM Tech	Phase I archaeological Assessment: Moreno Master Drainage Plan Revision
08944	2013	Bai "Tom" Tang and Michael Hogan / CRM Tech	Historical/Archeological Resources Survey Report, Assessor's Parcel No. 486-280-043, City of Moreno Valley, Riverside County, California
08945	2013	Bai "Tom" Tang and Michael Hogan / CRM Tech	Historical/Archaeological Resources Survey Report, Desilting Basin Site, Boulder Ridge Family Apartments Project, City of Moreno Valley, Riverside County, California
09209	2014	Gregory P. Greenberg / EBI Consulting	Cultural Resources Survey: I CARE/CLV5965, 14315 Nason Street, Moreno Valley, Riverside County, California 92557
09308	2014	David Brunzell / BCR Consulting	Cultural Resources Assessment of the Dracaea Project, Moreno Valley, Riverside County, California (BCR Consulting Project No. TRF1401)
09510	2015	Bai "Tom" Tang / CRM Tech	Update to Historical/Archaeological Resources Survey Assessor's Parcel No. 486-280-043 (Rocas Grandes Project) City of Moreno Valley, Riverside County, California
09901	2016	Tracy A. Stropes and Brian F. Smith / Brian F. Smith and Associates, Inc.	Phase I Cultural Resources Survey for the TTM 37060 Project, City of Moreno Valley, County of Riverside

Report No. (RI-)	Year	Author(s) / Affiliation	Title
10466	2018	Kristina Lindgren / ECORP Consulting, Inc.	Cultural Resources Investigation Moreno MDP Line H-2 Project Area in the City of Moreno Valley
10911	2018	Wendy Blumel / ECORP Consulting, Inc.	Cultural Resources Monitoring Report Cottonwood Interim Basin

The search also revealed that 49 resources have been previously documented within the 1-mi. records search radius, none of which are within or in direct proximity to the Project area (Table 2). Of these resources, 31 are prehistoric, with the remaining 18 historic. Prehistoric resources are dominated by bedrock milling stations of various sizes and complexities, with a single isolated bifacial mano documented. Historic resources include structures/residences, a number of which have been destroyed since their recording, as well as some water conveyance features associated with the former agricultural use of the area, roads, and refuse scatters.

Table 2. Resources Previously Recorded within the 1-Mile Records Search Radius

Primary # (P-33-)	Trinomial (CA-RIV-)	Date (Recorded by, Affiliation)	Prehistoric (P) / Historic (H)	Description	Attribute Codes*	Relationship to Project Area
000857	857	1975 (R. Weaver); 1987 (C. Prior, M. Conroy, and B. Neiditch, Archaeological Research Unit, UC Riverside)	P	Site BRMs	AP2; AP4	1.1 km SW
002866	2866	1984 (C. E. Drover)	P	Site BRMs	AP4	1.4 km NE
003067	3067	1985 (M. L. Hemphill, Scientific Resource Surveys, Inc.); 1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.); 2006 (V. Austerman)	P	Site BRM; destroyed	AP4	850 m NNE
003089	3089	1986 (C. E. Drover)	P	Site BRM	AP4	550 m NE
003133	3133	1986 (Daniel F. McCarthy, Archaeological Research Unit, UC Riverside)	P	Site BRM; likely destroyed	AP4	800 m NW
003134	3134	1986 (Daniel F. McCarthy, Archaeological Research Unit, UC Riverside)	P	Site BRM; likely destroyed	AP4	850 m NW
003135	3135	1986 (Daniel F. McCarthy, Archaeological Research Unit, UC Riverside)	P	Site BRM; likely destroyed	AP4	700 m NW
003223	3223	1987 (D. Pinto, Archaeological Research Unit, UC Riverside); 1990 (Letter: Kathryn Gualtieri, Office of Historic Preservation); 2001 (Email to: Joseph McDole); 2001 (Fax: Joseph McDole, Office of Historic Preservation)	P	Site BRM; likely destroyed	AP4	1 km W
003224	3224	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM; possibly destroyed	AP4	800 m W
003227	3227	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM; possibly destroyed	AP4	1.5 km NNW
003229	3229	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM; possibly destroyed	AP4	1.5 km NNW

Primary # (P-33-)	Trinomial (CA-RIV-)	Date (Recorded by, Affiliation)	Prehistoric (P) / Historic (H)	Description	Attribute Codes*	Relationship to Project Area
003232	3232	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM	AP4	1.3 km NE
003233	3233	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM	AP4	700 m ESE
003234	3234	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM	AP4	750 m E
003235	3235	1987 (D. Pinto, Archaeological Research Unit, UC Riverside)	P	Site BRM	AP4	500 m ESE
003248	3248H	1987 (Karen K. Swope, Archaeological Research Unit, UC Riverside)	H	Site; destroyed	AH6	Mismapped; actually 600 m N
003249	3249H	1987 (Karen K. Swope, Archaeological Research Unit, UC Riverside)	H	Site	AH6	1.2 km WSW
003342	3342	1987 (Barry R. Neiditch, Archaeological Research Unit, UC Riverside)	P	Site BRM; destroyed	AP4	1.45 km WSW
003959	3959	1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	900 m NE
003960	3960	1990 (C. E. Drover and D. M. Smith)	P	Site BRM	AP4	1.1 km NNE
003962	3962	1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.4 km N
003963	3963	1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.4 km N
003965	3965	1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.45 km N
003966	3966	1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1 km N
004286 / 013710	4286	1979 (M. A. Brown)	H	Site	coffin burial	1.35 km ENE
007277	-	1983 (J. Warner, Riverside County Historical Comm.)	H	Structure, 26960 Alessandro; destroyed	Single family residence	300 m S
007280	-	1983 (J. Warner, Riverside County Historical Comm.)	H	Structure, 24685 Cottonwood; destroyed	Single family residence	600 m NE
007281	-	1983 (J. Warner, Riverside County Historical Comm.)	H	Structure, 27476 Cottonwood	Single family residence	600 m NE
007283	-	1983 (J. Warner, Riverside County Historical Comm.)	H	Structure, 26876 Eucalyptus; destroyed	Single family residence	1.1 km NNW
011215	8087	1983 (J. Warner, Riv. Co. Historical Comm.); 2004 (Riordan Goodwin, LSA Associates)	H	District, 13000 Nason Street; destroyed	HP33	1 km N
015016	-	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Isolate – Mano	AP16	1.45 km N
015017	7981	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.3 km NNE

Primary # (P-33-)	Trinomial (CA-RIV-)	Date (Recorded by, Affiliation)	Prehistoric (P) / Historic (H)	Description	Attribute Codes*	Relationship to Project Area
015018	7982	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.35 km NNE
015019	7983	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.35 km N
015020	7984	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.15 km NNE
015021	7985	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.2 km N
015022	7986	2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM	AP4	1.6 km N
015024	7988	2005 (David Brunzell and Rory Goodwin, LSA Associates, Inc.)	H	Site	AH4	1.5 km NNE
015025	7989	2004 (R. Goodwin, LSA Associates, Inc.)	H	Site	HP21	1.4 km NNE
015027	7991	2004 (Riordan Goodwin, LSA Associates, Inc.)	H	Structure	AH6	600 m N
015029	7993	2005 (David Brunzell, LSA Associates, Inc.)	H	Site	HP22	1 km NNE
015030	7994	2005 (David Brunzell, LSA Associates, Inc.)	H	Structure	AH6	900 m NE
015031	7995	2004 (Riordan Goodwin, LSA Associates, Inc.)	H	Site	AH4	1.5 m NNE
015032/ 015320 (formerly 003961/ 003964)	7996/8088 (formerly 3961/3964)	1990 (C. E. Drover and D. M. Smith); 2004 (P. Fulton and N. Lawson, LSA Associates, Inc.)	P	Site BRM (multiple duplicates of same site)	AP4	1.2 km NNE
015934	-	2006 (Pamela Daly, PCR Services, Inc.)	H	Structure; 27913 Cottonwood Avenue	HP2; HP30; HP33	1.25 km ENE
016788	-	2007 (J. Sanka, Michael Brandman Associates)	P	Isolate – displaced BRM	AP4; AP16	1.5 km W
019919	-	2010 (C. Cotterman, ECORP Consulting)	H	Site	AH5; AH6	1.5 km SE
028580	-	2017 (Kristina Lindgren, ECORP Consulting, Inc.)	H	Road	HP37	850 m ESE
028581	-	2017 (Kristina Lindgren, ECORP Consulting, Inc.)	H	Road	HP37	850 m ESE

*AP2. Lithic scatter; AP4. Bedrock milling; AP16. Other; AH4. Refuse scatter; AH5. Well; AH6. Water conveyance system; HP2. Single family property; HP21. Dam; HP22. Lake/river/reservoir; HP30 trees/vegetation; HP33. Ranch/agricultural complex; HP37. Road

Historical Imagery

Historic topographic maps from 1954, 1958, 1963, 1965, 1968, 1976, 1980, 1985, 2012, and 2015 were analyzed on historicaerials.com, as were historic aerials dated 1966, 1967, 1978, 1996, 1997, 2002, 2005, 2009, 2010, and 2012. Additional historic maps dating to 1901 and 1943 provided by the EIC were also examined.

The earliest topographic map, the USGS Elsinore 30-minute quadrangle, dating from 1901 shows the Project area already platted out with main north/south and east/west roads in place. The 1943 U.S. Army Corps of Engineers Perris 15-minute quadrangle depicts two structures at the northwest corner of the parcel. On the 1954 USGS topographic map, the west half of the parcel is depicted as in agricultural use and the east half is vacant, with the two structures still appearing at the northwest corner. The majority of the

surrounding area is similarly in agricultural use. There are no significant changes to the land use or the surrounding area depicted in any subsequent map.

Aerial photographs starting in 1966 show the same land use pattern, with the structures at the northwest corner surrounded by an orchard that covers the west half of the parcel, with the east half vacant. Orchards appear on many of the surrounding parcels. The 1978 aerial indicates that the east half of the parcel was planted as an orchard at that point, with many of the surrounding parcels now vacant. Structures appear on the parcels to the north and south in the 1996 image, while the Project parcel is still fully planted; the same situation persists through the 2002 image. In 2005, the parcel is vacant, other than the original residential area at the northwest corner; this is the current condition of the parcel.

NAHC Sacred Lands File Search

The results of ASM's request for a search of the Sacred Lands File (SLF) held by the California Native American Heritage Commission (NAHC) was received on January 24, 2019. This search was undertaken to supplement the EIC records search to inquire as to whether resources important to local Native American groups may exist within the proposed Project area that may not appear within the CHRIS system. The NAHC response was negative, although they caution that the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. A list of 15 tribal contacts who may have interest in the Project area was provided with the NAHC response. Query letters were sent to each of the contacts. The NAHC response, sample query letter, and any responses received to date are provided with this memo as Confidential Attachment D.

CULTURAL AND ENVIRONMENTAL SETTING

Natural Setting

The City of Moreno Valley (City) is located in northwestern Riverside County. It is bounded on the west by the City of Riverside, with Redlands to the north, Beaumont to the east, and Lake Perris on the south. Geographically, it lies west of the San Gorgonio Pass and Coachella Valley; north of Lake Perris, Perris, the San Jacinto Mountains, and the route to San Diego; and south of the San Bernardino Valley and San Bernardino Mountains. The majority of the Project site has been heavily modified by long-term agricultural use. The site is relatively flat, but slightly sloping to the southeast, with elevations ranging from 1630 ft. in the northeast corner to 1610 ft. in the southeast corner. The City is largely urbanized and surrounded by other developed and developing cities; the setting surrounding the Project area is primarily residential.

Prehistoric Background

Archaeological investigations in Riverside County and elsewhere in southern California have documented a diverse range of prehistoric human occupations, extending from the terminal Pleistocene down to the time of European contact (Koerper and Drover 1983; Mason 1984; McKenna 1986; Wallace 1955; Warren 1968). To describe and discuss this diversity, local investigators have proposed a variety of different chronologies and conceptual categories (periods, horizons, stages, phases, traditions, cultures, peoples, industries, complexes, and patterns), often with confusingly overlapping or vague terminology. The prehistory of the Project area is most frequently divided chronologically into four periods: the Paleoindian period, prior to 6000 B.C.; the Milling Stone Horizon (Middle / Late Holocene Period) from 6000 B.C. to A.D. 750 A.D.; the Late Prehistoric Period, from A.D. 750 to 1750; and the Ethnohistoric Period, after 1750.

Paleoindian (pre-6000 B.C.)

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. These tools suggest a reliance on hunting rather than gathering. In general, hunting-related tools are more common during this period and are replaced by processing tools during the early Holocene (Basgall and Hall 1990).

Milling Stone Horizon, Late/Middle Holocene (6000 B.C. – 750 A.D.)

The Milling Stone Horizon is characterized by the presence of hand stones, milling stones, choppers, and scrapers. These tools are thought to be associated with seed gathering and processing and limited hunting activities. The artifacts from this period show a major shift in the exploitation of natural resources. Adaptations during this period apparently emphasized gathering, in particular the harvesting of hard plant seeds, as well as small-game hunting. Distinctive characteristics from this period include extensive shell middens, near the coast, portable ground stone metates and manos, crudely flaked cobble tools, occasional large expanding-stemmed projectile points (Pinto and Elko forms), and flexed human burials. Investigators have called attention to the apparent stability and conservatism throughout this long period, as contrasted with less conservative patterns observed elsewhere in coastal southern California.

Late Prehistoric Period (A.D. 750-1750)

Like much of southern California, this period in the general Project area is characterized primarily on the basis of three major innovations: the use of small projectile points (Desert Side-notched, Cottonwood Triangular, and Dos Cabezas forms), associated with the adoption of the bow and arrow in place of the atlatl as a primary hunting tool and weapon; brownware pottery, presumably supplementing some of the continued use of basketry and other containers; and the practice of human cremation in place of inhumation. In addition, steatite containers, asphaltum items, mortars and pestles, and bedrock mortars are also common artifacts.

Traits characterizing the Late Prehistoric period include greater reliance on acorns as an abundant but labor-expensive food resource, a greater emphasis on hunting of both large and small game (particularly deer and rabbits), a greater amount of interregional exchange (seen notably in more use of obsidian), more elaboration of nonutilitarian culture (manifested in more frequent use of shell beads, decorated pottery and rock art), and possibly denser regional populations. Settlement may have become more sedentary during this period, as compared with the preceding period.

Ethnohistoric Period (Post A.D. 1750)

The Project area is within the ethnohistoric territory of the Luiseño, although proximity to the territories typically associated with the Gabrielino to the north and west, the Cahuilla in the desert to the east, and the Juaneño to the southwest may have meant the area was occasionally shared by different groups (Clark and Smallwood 2015). In ethnohistoric times Luiseño territory extended from Agua Hedionda Lagoon, Escondido, and Lake Henshaw in San Diego County northward into southern Orange and Riverside counties.

Linguistic evidence links Luiseño and Cahuilla with the Uto-Aztecan family of languages (e.g., Golla 2007; Laylander 2010). A hierarchy of relationships within that family likely mirror a sequence of separations reflecting territorial expansions or migrations, leading the linguistic ancestors of the Luiseño and Cahuilla from a still-debated Uto-Aztecan homeland to a northern Uto-Aztecan base somewhere in western North America and ultimately south to their ethnohistoric homes. Splits within the ancestral family included the differentiation of Takic (also termed Southern California Shoshonean) (ca. 1000 B.C.?), the separation of Luiseño from Cahuilla-Cupeño (ca. A.D. 1?), and the separation of Cahuilla and Cupeño (ca. A.D. 1000?).

While Luiseño and Cahuilla cultural patterns, as recorded subsequent to European contact, cannot necessarily be equated with Late Prehistoric patterns, at a minimum they provide indispensable clues to cultural elements that would be difficult or impossible to extract unaided from the archaeological record alone. A few important ethnohistoric accounts are available from Franciscan missionaries and others (Geiger and Meighan 1976; Harrington 1933, 1934; Henshaw 1972; Laylander 2000). Many accounts by ethnographers, primarily recorded during the early and middle twentieth century, are available (Bean 1972, 1978; Bean and Shipek 1978; Bean and Smith 1978; Drucker 1937; Gifford 1918; Hicks 1963; Hooper 1920; Kroeber 1908, 1925; Laylander 2004; Sparkman 1908; Strong 1929; White 1953, 1957, 1963).

The Luiseño inhabited a diverse environment that included littoral, valley, foothill, mountain, and desert resource zones. Because of the early incorporation of coastal Luiseño into the mission system, most of the available twentieth-century ethnographic information relates to inland groups that lived in the Peninsular Range and the Colorado Desert. Acorns were a key resource for inland groups, but a wide range of other mineral, plant, and animal resources were exploited (Bean and Saubel 1972; Sparkman 1908). Some degree of residential mobility seems to have been practiced. The fundamental Luiseño social units above the family were patrilineal, patrilocal clans, the latter ideally coinciding with the winter-spring village communities. The Cahuilla and Cupeño also had patrilineal Coyote and Wildcat moieties, serving primarily to impose exogamous marriage and to conduct ceremonies. Hereditary leaders performed ceremonial, advisory, and diplomatic functions, rather than judicial, redistributive, or military ones. There seems to have been no national level of political unity among the Luiseño or Cahuilla, and perhaps little sense of commonality within the language group.

Luiseño material culture was effective, but it was not highly elaborated. Structures included houses with excavated floors, ramadas, sweathouses, ceremonial enclosures, and acorn granaries. Hunting equipment included bows and arrows, curved throwing sticks, nets, and snares. Processing and storage equipment included a variety of flaked stone tools, milling implements, ceramic vessels, and baskets.

Nonutilitarian culture was not neglected. A range of community ceremonies were performed, with particular emphases placed on marking individuals' coming of age and on death and mourning. Oral literature included, in particular, an elaborate creation myth that was shared with the Takic-speaking Serrano as well as with Yuman speakers (Kroeber 1925; Laylander 2001; Waterman 1909).

Historic Period

Spanish explorer Juan Rodríguez Cabrillo first discovered California in 1542, claiming it for the King of Spain. However, Spanish contact within the vicinity of the Project area did not take place until the 1770s when Father Garces traveled across the Mojave Desert and entered coastal southern California through the Cajon Pass (Walker 1968).

The Mission San Gabriel de Archangel was established in 1771 and claimed what are now the San Gabriel and San Bernardino valleys. In 1819, a mission outpost, or asistencia, was established in the area of present-day Redlands (Dumke 1944; Hanna 1951; McWilliams 1973; Scott 1977). This outpost, part of Mission San Gabriel's Rancho San Bernardino, was established in order to expand the agricultural holdings of Mission San Gabriel. The asistencia was later moved to its current location, where construction was begun in 1830; it was abandoned soon after in 1834 (Lugo 1950).

The Mexican War of Independence ended in 1821, severing the Spanish hold on the Californias and secularizing former mission lands. A series of ranchos was granted throughout the County of Riverside and much of the land was used for ranching activities. Although some land had been granted to Native Americans, most of the land went to military men or merchants. Granting large ranch lands or ranchos remained as both a Spanish and a Mexican legacy in California. Land granted to Mexicans between 1833

and 1846 amounted to 500 ranchos primarily granted near the coast from San Francisco to San Diego. Hand-drawn maps or diseños indicated the often-vague boundaries of the grants where dons and doñas constructed adobe houses on their vast lands, cultivating the land, and grazing cattle, often with the aid of vaqueros. Mexican Governor Pío Pico granted a great number of those ranchos prior to 1846, quickly carving up Alta California to ensure Mexican land titles survived a U.S. victory in the Mexican-American War (1846-1848) (Christenson and Sweet 2008:7; Engstrand 2005:64-66; Robinson 1948:23-72).

BRIEF HISTORY OF MORENO VALLEY

Land throughout the western U.S. had been officially made available through a series of federal homesteading acts in the 1860s-1870s that required federal land patents. Those who attempted to homestead newly available land often practiced dry-farming, which relied on seasonal crops sustained only by seasonal water. Others attempted to find more a more consistent water source for thirsty fruit trees by digging or drilling wells, but it was a difficult way to settle land and many were unsuccessful. As part of an effort to sustain settlement claims, irrigation companies and districts were organized. In California, most developed in the 1880s and 1890s during the population booms, and Moreno Valley was no different. The first two towns established in the valley were Alessandro in 1887 followed by Moreno in 1890. The valley was then known as Alessandro Valley (Hamner 2003:5; Holtzclaw and the Moreno Valley Historical Society 2007:7).

In 1890, water was promised to valley lands through Frank E. Brown's Bear Valley and Alessandro Development Company. Brown and his partner had constructed a dam that brought water from the Big Bear mountains to the newly established Redlands. Property owners in Redlands owned priority water rights. Brown's new company comprised of a variety of stockholders purchased several tracts in the valley and reestablished Alessandro. It quickly acquired 25,000 acres in the valley. The company established two main boulevards, Alessandro and Redlands, as well as streets and avenues, and platted 10-acre parcels where excited buyers could grow citrus, grapes, and fruit on their residential properties. When those properties with secondary water rights were made available, 8,000 acres were sold in one day. Two companies developed from Bear Valley and Alessandro Development Company. Bear Valley Irrigation District sold the parcels and transported the water while the Alessandro Irrigation District delivered the water to the valley. Even before the water delivery to the valley, settlers began improving their land with an estimated 2,000 acres under cultivation by May 1891. In October 1891, the first water delivery was made through 40 miles of pipeline, tunnels, and ditches (Hamner 2003:5-8).

Snow pack on the Big Bear mountains overfilled the reservoir and ensured a water source, prompting the rapid growth of Alessandro and Moreno. By 1894, some grand homes had been constructed in the valley. A number of fruit companies were already sending shipments to Riverside via the railroad. Five schools served the valley as well as a lumber yard, hotels, churches, and the first post office in the valley opened in Alessandro. The Alessandro Irrigation District floundered. Brown's recommendation to raise the dam for increased capacity for the dry years went disregarded. Instead of using company funds to increase the dam height and system maintenance, stockholders were overpaid ultimately resulting in the declaration of bankruptcy in 1893. Although the company was purchased at auction, the lack of water during dry years and Redlands' priority water rights ultimately resulted in the valley's disconnection from its Big Bear water system in 1899. The following year, one hundred residents moved their grander homes by steam-powered tractor to Riverside. Alessandro dwindled to a post office, grocery store, a hotel, and few houses, and the railroad depot was no longer a regularly scheduled stop. Moreno had the same fate as Alessandro. While water flowed from Big Bear Mountain in 1901, thereafter, much of the land cultivated as farm land was sewn in grains, which could be dry-farmed (Hamner 2003:10-11; Holtzclaw and the Moreno Valley Historical Society 2007:7-8).

In the midst of the valley exodus, Eli Hendrick purchased 18,000 acres, including the abandoned town of Alessandro in 1902 and created a ranch where he dry-farmed grains. Some settlers slowly returned to the valley when water was found in San Simeon Canyon. The subdivisions of the Sunnymead Orchard Tract in 1912 and the Edgemont Tract in 1923 both provided some, if limited, renewed interest in the area. However, the federal government purchased 12,000 acres of the Hendrick Ranch for Alessandro Flying Field (March Air Force Base). It opened in 1918, at the height of World War I, and became a cornerstone for the community. Although the base closed in 1922, it reopened five years later to train aviators. In the 1930s, it became a permanent aviation field and represented the majority of the residents in the valley in 1936 at 895. In addition to dry-farming grains, locals also grew melons and began growing potatoes to serve the growing need during World War II. Construction of Camp Haan east of the Air Force Base brought 85,000 personnel at the height of the war. Yet, the valley remained sparsely populated. In 1948, a majority of the population lived in Sunnymead and it had only grown to approximately 1,500 to 2,000 with an estimated 800 people in Edgemont. The Box Springs Mountain area remained on the outskirts of development. Some new enterprises developed in the 1950s such as the Kerr Stock Farm and the Riverside International Raceway, but most of the land in the valley was undeveloped or used for grain farming. Significant growth occurred in the valley during the 1960s when large parcels of land were developed. New industrial development such as Rohr Industries came to the valley. Population growth was sustained through the Feather River Project that facilitated the construction of Perris Dam and its reservoir. By the 1970s, commercial development increased but a majority of the acreage was still undeveloped or used as agricultural land. In 1978, the population had grown to 23,775. By 1984, the population had grown to 53,774, an increase that supported the establishment of the City of Moreno Valley in November. The newly incorporated city included the oldest town of Moreno as well as Sunnymead and Edgemont (Christiansen and Wallace 1985:24; Hamner 2003:12; Holtzclaw and the Moreno Valley Historical Society 2007:8, 26, 30, 37, 39; Moreno Valley Chamber of Commerce 1979).

Site-Specific History

The property is located on the east side of Nason Street north of Bay Avenue and south of Cottonwood Avenue. It is described as Lot 5 in Block 92 of land originally owned by the Bear Valley and Alessandro Development Company. The parcel consists of nearly nine acres, with the house located in the northwest corner and separated by a chain link fence. Some parcels in the area have been subdivided as housing developments.

Although an original building permit was not located, assessor records indicate that the house was constructed in 1942. Deeds were searched back to 1940, but the first recorded deed dates to 1947 when the property was transferred from Jackson Ranch to Roger Fife. There was a Fife family based in Riverside that were well-known evangelicals, but no one named Roger could be located. Additionally, no one at the Moreno Valley Historical society was aware of anyone of this name, and Jackson Ranch was also unknown.

Roger Fife sold the property to C. W. Lantz in 1955. Carl Walford Lantz was the son of Moreno Valley pioneer, Carl Oscar Lantz. The elder Lantz was born in Småland, Sweden in 1867 (*Riverside Independent Enterprise* 1957). He emigrated in 1885, traveling from Liverpool, England, to New York on the *Britannic* (New York Port, Ship Images 1851-1891). He moved to Iowa and then Riverside before arriving in Moreno Valley in 1891. He purchased 10 acres near the corner of Nason Street and Alessandro Boulevard and first attempted to plant grapes. After a grasshopper invasion he turned to oranges and planted the first grove in the valley (*Press Enterprise* 1987). In 1895, he married Hilma Alexina Isakson and they built a home on their acreage (Figure 5). Their son Carl Walford was born on July 26, 1899 (*Butterfield Express* 1980). The following year, a fire started in the kitchen while Hilma was out hanging clothes and their house was completely destroyed (*Riverside Daily Press* 1900). Oscar decided to buy a new house, and have it moved to his acreage with the help of his neighbors who rendered every assistance “to see them soon again in a home of their own” (*Riverside Independent Enterprise* 1900) (Figure 6). Moreno Valley entered a dry cycle

at the turn of the century that caused most residents to move to Riverside. Oscar Lantz was one of the few people to stay and build wells to irrigate his orchards (*Riverside Independent Enterprise* 1951) (Figure 7). He and Hilma had a daughter, Alice (1904-1976) and he continued to be active in the community, working as the assistant farm advisor for Riverside County and serving as president of the Moreno Water Company (*Riverside Daily Press* 1919).

Oscar and his son Carl began to purchase surrounding acres for more orange and olive groves. By the time of his death in 1957, Oscar Lantz owned 335 acres, 165 of which were planted with citrus (*Riverside Independent Enterprise* 1957). Carl Walford married Mary Lee Riggs, a recent graduate from UCLA, in 1936. Mary Lee was the daughter of a Los Angeles minister and sister of the tennis player Bobby Riggs. She arrived in Moreno Valley in 1931 and began teaching at the Midland School that same year (*Butterfield Express* 1980). Carl Walford also began to purchase surrounding acres when he could, describing it as a kind of hobby, until his ranch included 1,000 acres (*Press Enterprise* 1987). The property at 13636 Nason Street appears to be one of the parcels he purchased as part of the expansion of the ranch. The 1940 census lists the family as living on Nason Street with Oscar Lantz living next door. Since the house at 13636 was not constructed until 1942, they were clearly living at a different location on the street (U.S. Census Bureau 1940). Carl and Mary Lee had three sons: Carl Robert (1938-2017), David Leland born in 1940, and John Walfred born in 1944 (State of California 2005). Mary Lee Lantz taught at the local school until the mid-1960s. When Carl Walfred died in 1996, the property at 13636 Nason Street was left to his wife and son David. When Mary Lee Lantz passed away in 2000, the property was transferred to David and his wife Judith. Although it is occasionally listed as an address associated with David Lantz, it appears that the property was frequently rented out. Aerial photos indicate the orchard surrounding the house was removed sometime between 2002 and 2005.

SURVEY RESULTS

Archaeological Survey

The Project area has been modified over time by the long-time use of the majority of the parcel for agricultural purposes, as well as residential use of the area at the northwest corner. Pedestrian survey was conducted throughout the parcel with a 15-m transect interval. Vegetation was very heavy across the majority of the formerly agricultural parcel (Figure 8). The remnants of an irrigation system evidently associated with the orchard that once covered the parcel were documented along both the northern edge of the parcel (Figure 9) as well as along the northern edge of the small remaining citrus grove that is situated to the south of the residential complex (Figure 10). These features appear similar in age to the residence and so are presumed to be a part of that complex.

The entire Project area was carefully inspected for any sign of the presence of any other cultural materials; no previously undocumented resources were encountered during the intensive pedestrian archaeological survey.

Architectural History

The property at 13636 Nason Street is located in the city of Moreno Valley on an nine-acre parcel on the east side of Nason Street between Cottonwood Avenue to the north and Bay Avenue to the south. In addition to some temporary shed buildings, there are three permanent structures on the parcel: a single-family residence, a garage, and an agricultural outbuilding. All of the buildings are located behind a chain link fence that surrounds the northwest corner of the parcel (Figure 11). A short driveway leads to the garage with the outbuilding to the south and the house to the north (Figure 12). The 1,753-square-foot home was constructed in 1942 in a Minimal Traditional style (Figure 13). It has a rectangular plan and rests on a concrete slab foundation. The house is clad in stucco which may be covering the original clapboard siding. The moderately pitched gable on hip roof is covered with asphalt shingles with slightly overhanging eaves.

The front gable contains a small vent and there is a brick chimney located just to the north (Figure 14). It appears that the south shed roof portion of the house was added after the initial construction when the house would have had a square plan (Figure 15). Two concrete steps lead to the main entrance on the west (primary) façade. Two aluminum slider replacement sash windows flank the entrance on this façade.

A side-facing gable wing is located on the north side of the house (Figure 16). Fenestration consists of three aluminum-frame sash that are replacements of the originals. The rear (east) façade of the house shows evidence of further additions and alternations (Figure 17). There are three shed additions beneath the main gable. One of these contains a small aluminum slider sash window (Figure 18). The windows in the gable section are also aluminum-framed slider sash. There is a small window that has been boarded over in the gable end, in addition to a small vent similar to the one on the front. There is a sliding glass door accessed by the three concrete steps on the east façade of the side gable wing (Figure 19).

The garage is a simple one-story wood frame building with a front-facing gable roof (Figure 20). The roof has a thick fascia and is covered with asphalt shingles. Two roll-up doors that have been replaced are located on the west façade. A rectangular vent is located in the gable end on this façade with an additional vent located on the east façade (Figure 21).

The outbuilding has a corrugated metal gable roof with a flat awning section to the west (Figure 22). The walls are also corrugated metal with a large roll-up door on the north façade (Figure 23). There is an additional standard entrance located just east of the utility door.

Although the entire parcel used to be used as an orchard, the only trees remaining are immediately adjacent to the buildings to the south and east (Figure 24).

REGULATORY FRAMEWORK AND ELIGIBILITY CRITERIA

Cultural resources are considered scientifically and educationally significant nonrenewable resources, and as such they are protected under a variety of federal (e.g., Antiquities Act of 1906; National Environmental Policy Act of 1969; Federal Land Policy Management Act of 1976; Paleontological Resources Preservation Act of 2009), state (e.g., California Environmental Quality Act, Public Resources Code), and local (e.g., City of Moreno Valley General Plan, County of Riverside General Plan) laws, regulations, and ordinances.

The Project site is located within the City of Moreno Valley, Riverside County; therefore, local and state laws, ordinances, and regulations are applicable, as outlined below.

Local

The City of Moreno Valley General Plan (Chapter 9, Objective 7.6) sets forth the goal of identifying and preserving "Moreno Valley's unique historical and archaeological resources for future generations" (City of Moreno Valley 2006). Specifically, their policies state:

> 7.6.1 Historical, cultural and archaeological resources shall be located and preserved, or mitigated consistent with their intrinsic value.
> 7.6.2 Implement appropriate mitigation measures to conserve cultural resources that are uncovered during excavation and construction activities.
> 7.6.3 Minimize damage to the integrity of historic structures when they are altered.
> 7.6.4 Encourage restoration and adaptive reuse of historical buildings worthy of preservation.
> 7.6.5 Encourage documentation of historic buildings when such buildings must be demolished.

General Plan Conservation Element Objective 7.6 and the associated policies and Program 7-6 are designed to ensure that cultural resources are identified and that impacts to cultural resources are avoided or reduced

in ways that are consistent with their intrinsic value. No specific eligibility criteria have been established by the City of Moreno.

California Register of Historical Resources Significance Criteria

The CRHR program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance; identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under CEQA. The criteria established for eligibility for the CRHR are directly comparable to the national criteria established for the NRHP.

In order to be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2) It is associated with the lives of persons important to local, California, or national history.
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation [Public Resources Code, §5024.1(c)].

Historical resources eligible for listing in the CRHR must also retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for the CRHR, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 2001). This general definition is generally strengthened by the more specific definition offered by the NRHP—the criteria and guidelines on which the CRHR criteria and guidelines are based upon.

Integrity

In order to be eligible for listing in the NRHP and CRHR, a property must retain sufficient integrity to convey its significance. The NRHP publication *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin 15, establishes how to evaluate the integrity of a property: "Integrity is the ability of a property to convey its significance" (National Park Service, National Register of Historic Places 1998). The evaluation of integrity must be grounded in an understanding of a property's physical features and how they relate to the concept of integrity. Determining which of these aspects are most important to a property requires knowing why, where, and when a property is significant. To retain historic integrity, a property must possess several, and usually most, aspects of integrity:

1. **Location** is the place where the historic property was constructed or the place where the historic event occurred.
2. **Design** is the combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting** is the physical environment of a historic property and refers to the character of the site and the relationship to surrounding features and open space. Setting often refers to the basic physical conditions under which a property was built and the functions it was intended to serve. These features can be either natural or manmade, including vegetation, paths, fences, and relationships between other features or open space.

4. **Materials** are the physical elements that were combined or deposited during a particular period or time, and in a particular pattern or configuration to form a historic property.
5. **Workmanship** is the physical evidence of crafts of a particular culture or people during any given period of history or prehistory and can be applied to the property as a whole, or to individual components.
6. **Feeling** is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, when taken together, convey the property's historic character.
7. **Association** is the direct link between the important historic event or person and a historic property.

California Environmental Quality Act Significance Criteria

California Code of Regulations, Title 14, §15064.5 *Determining the Significance of Impacts to Archeological and Historical Resources* requires that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, including effects to historical resources. Historical resources are recognized as part of the environment under CEQA. It defines historical resources, in pertinent part, as "[a]ny object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California[.]"

Lead agencies have a responsibility to evaluate historical resources against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources. Mitigation of adverse impacts is required if the proposed project will cause substantial adverse change to a historical resource. Substantial adverse change includes demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired. While demolition and destruction are fairly obvious significant impacts, it is more difficult to assess when change, alteration, or relocation crosses the threshold of substantial adverse change. California Code of Regulations, Title 14, §15064.5(b)(2) provides that a project that demolishes or alters those physical characteristics of an historical resource that convey its historical significance (i.e., its character-defining features) can be considered to materially impair the resource's significance. The CRHR is used in the consideration of historical resources relative to significance for purposes of CEQA. The CRHR includes resources listed in, or formally determined eligible for listing in, the NRHP, as well as some California State Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts), or that have been identified in a local historical resources inventory, may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA, unless a preponderance of evidence indicates otherwise.

Generally, under California Code of Regulations, Title 14, §15064.5(a), a resource is considered by the lead agency to be a "historical resource" if it:

1) Is listed in, or determined to be eligible by, the State Historical Resources Commission, for listing in the California Register of Historical Resources (Public Resources Code, §5024.1; California Code of Regulations, Title 14, §§4850 et seq.).
2) Is included in a local register of historical resources, as defined in Public Resources Code, §5020.1(k), or is identified as significant in an historical resource survey meeting the requirements of Public Resources Code, §5024.1(g).
3) Is a building or structure determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political,

military, or cultural annals of California (Public Resources Code, §5024.1; California Code of Regulations, Title 14, §4852).

EVALUATION OF ELIGIBILITY

Three buildings on the property are older than 45 years: the house, the garage, and the agricultural outbuilding. All three buildings are recommended not eligible for the CRHR, neither individually nor as a contributor to any historic district under any criteria. The property does not collectively represent Moreno Valley's significant historic themes under any of the CRHR criteria. Therefore, the property at 13636 Nason Street is not a potential contributor to any historic district.

In consideration of the buildings' individual eligibility, 13636 Nason Street is not strongly associated with significant historic themes or events in Moreno Valley's history. Although the home was owned by the son of a pioneer farmer who planted several orchards in the area, the chain of title indicates that Carl Walfred Lantz did not own the home at the time of construction. As it was built in 1942, it is not the original homestead associated with the Lantz family, which was built in 1900 following a fire. Thus, the buildngs at 13636 Nason Street are recommended not eligible for the CRHR under Criterion 1. The home is closely associated with the Lantz family, who have owned it since 1955. Although prominent in the Moreno Valley area as farmers and landowners, the house itself is not the most representative of the family's residence in the area. All city directory listings for Carl Walfred Lantz list an address in the 12000 block of Nason Street, north of Route 60. It appears that the property was rented out for several years and therefore is not directly associated with the lives of the Lantz family. Therefore, the buildings are recommended not eligible for the CRHR under Criterion 2. The house 13636 Nason Street is an example of the Minimal Traditional style and has elements, such as the hipped roof and lack of decorative detailing, that are associated with that style. However, it has had several alterations in addition to the replacement of all the windows which have impacted the integrity of the building. The outbuildings are common vernacular structures without a particular style. Furthermore, no evidence was found that the buildings are the work of a master architect or a noted local architect. Therefore, the buildings at 13636 Nason Street are recommended not eligible for the CRHR under Criterion 3. The buildings at 13636 Nason Street are recommended not eligible under CRHR Criterion 4. They are common property types that do not have the potential to provide information about history or prehistory that is not available through historic research.

As the buildings at 13636 Nason Street are recommended not eligible for the CRHR either individually or as contributors to a historic district, they are not historical resources for the purposes of CEQA.

IMPACTS ASSESSMENT

California Code of Regulations, Title 14, §15064.5(b)(1) defines a substantial adverse change as one that would materially impair the significance of an historical resource. According to California Code of Regulations, Title 14, §15064.5(2)(C), "[t]he significance of an historical resource is materially impaired when a project… [d]emolishes 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 [CRHR] as determined by a lead agency for purposes of CEQA." After evaluation of the buildings within the current proposed Project area which are more than 45 years old, all are recommended not eligible for the CRHR. They are not included in a local register of historical resources, nor identified as significant in an historical resource survey meeting the requirements of Public Resources Code §5024.1(g). As a result of ASM's evaluation, none are recommended as a building or structure determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. As such, the buildings are not historical resources as defined by CEQA. The demolition of the buildings will not result in a substantial adverse change to a

historical resource. Therefore, pursuant to California Code of Regulations, Title 14, Chapter 3 (CEQA Guidelines), ASM recommends that this action does not constitute an adverse impact.

RECOMMENDED MITIGATION

There is no significant adverse impact; therefore, mitigation is not required.

CONCLUSION

After documentation and evaluation of the history of 13636 Nason Street, and careful consideration of the ability of the extant buildings and features to reflect the significant historic contexts and themes in Moreno Valley, all of the buildings are recommended not eligible for the CRHR under any criteria. None of the buildings are included in a local register nor are they recommended as historically significant buildings. As such, the buildings are not considered historical resources for the purposes of CEQA compliance. The three buildings are not considered contributors to a potential historic district under any criteria. No archaeological resources were identified within the Project area as a result of the current study. Therefore, no CEQA historical resources will be adversely impacted as a result of the Project. Please feel free to contact me as needed if you have questions or concerns.

Sincerely,



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Attachment A: References
Attachment B: Figures and Photographs
Attachment C: EIC Records Search Summary
Attachment D: NAHC and Native American Correspondence
Attachment E: DPR Forms
Attachment F: Paleontological Resource Assessment

ATTACHMENT A: REFERENCES

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ATTACHMENT B: FIGURES AND PHOTOGRAPHS



Figure 1. Project vicinity map.

Figures and Photographs

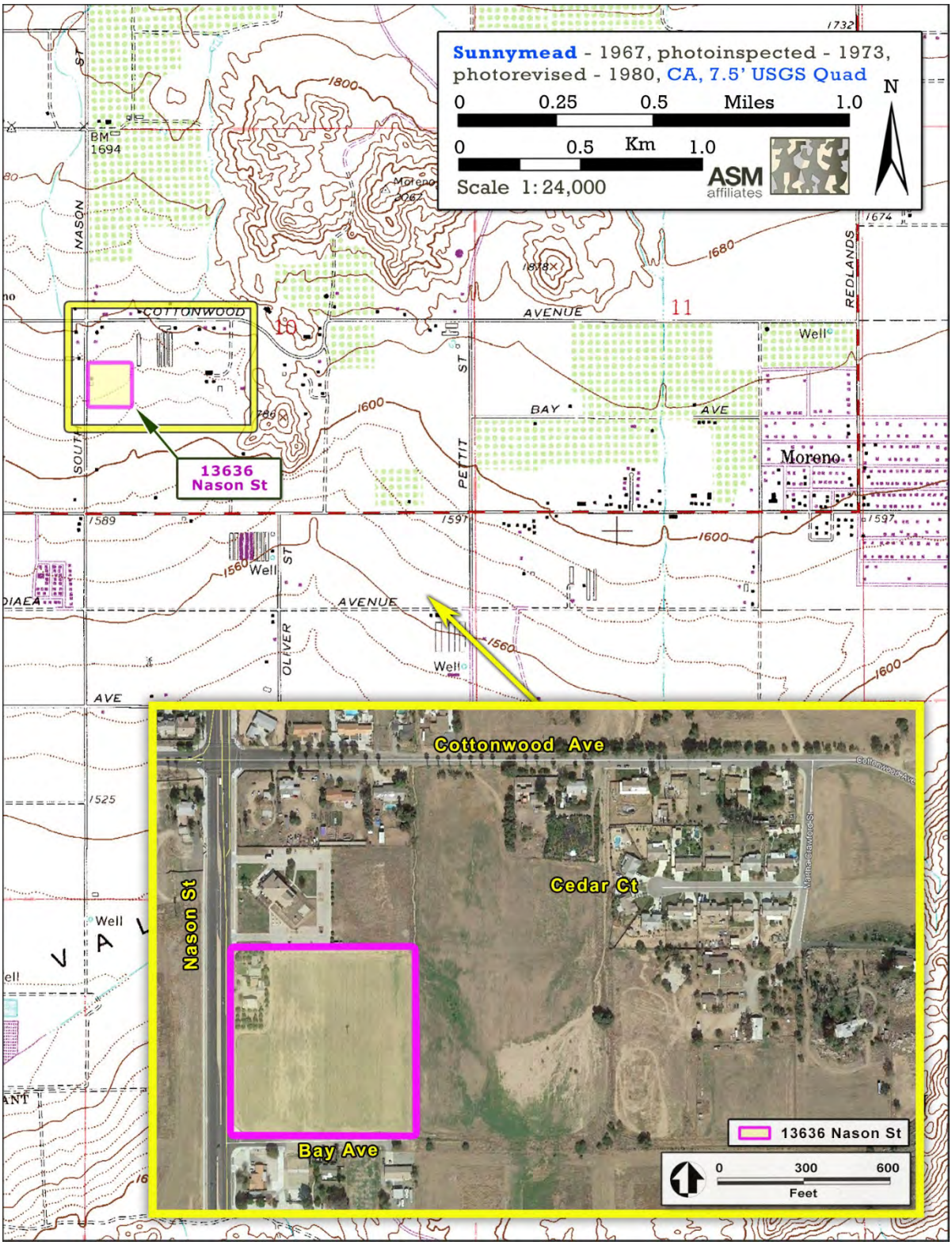


Figure 2. Project location map.



Figure 3. Project area map close-up, project site outlined in pink.

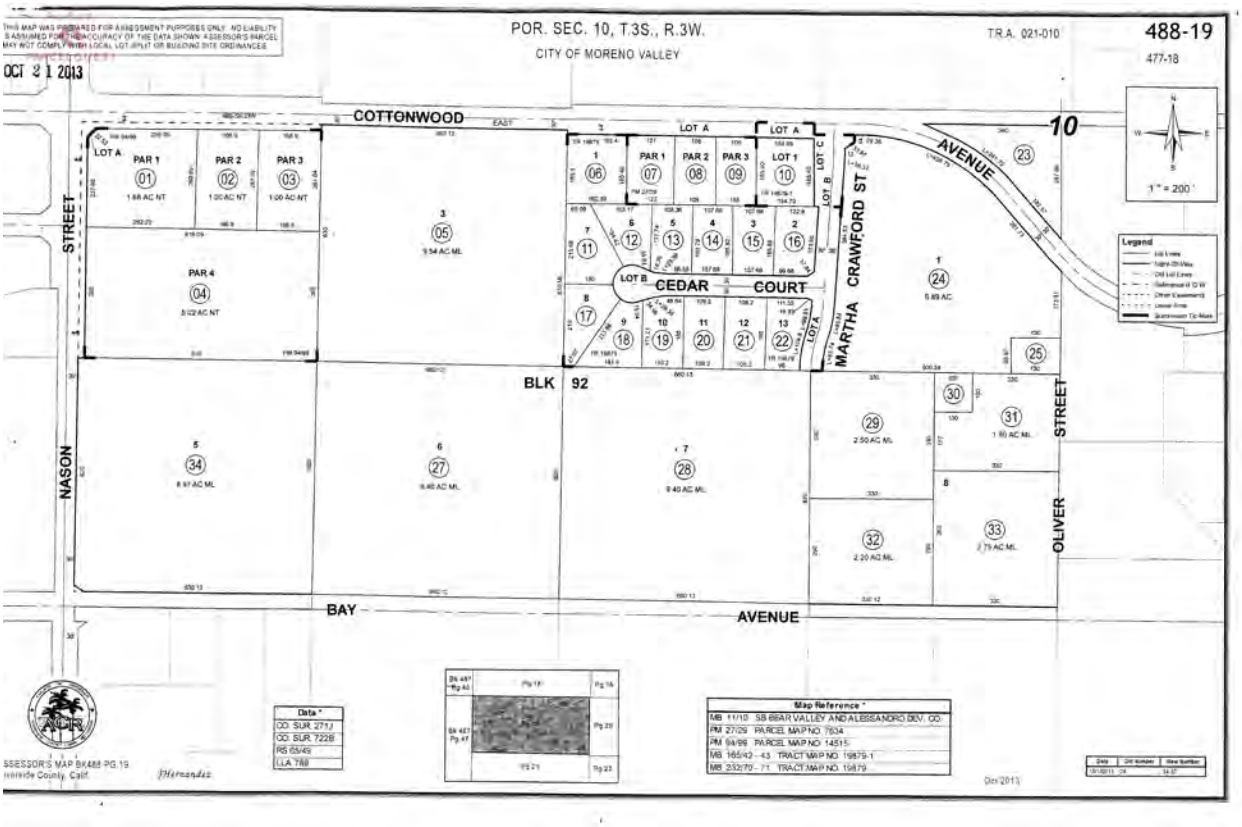


Figure 4. Tract map.



Figure 5. Wedding photo of Oscar and Hilma Lantz, 1895.



Figure 6. Photo showing house at Nason Street and Alessandro that was the original Oscar Lantz homestead. Photo courtesy of the Moreno Valley Historical Society.



Like other farmers in the area, Carl Lantz was evolved in dry farming of grain. Shown here is his combine harvesting equipment, which served him well during this time but that appears antiquated today. Shown standing from left to right are Carl, daughter Alice, son Walfred, and three unidentified crewmembers. The three men on the equipment are also crewmembers. (Courtesy Dave Lantz.)

Figure 7. Photo showing the Lantz family with harvesting equipment from *Images of America: Moreno Valley* by Kenneth M. Holtzclaw, Moreno Valley Historical Society.



Figure 8. Overview of parcel toward residence, view toward northwest.



Figure 9. Overview of irrigation system features along northern fence line, view toward west.



Figure 10. Irrigation features along north edge of remaining citrus trees at south edge of garage, view toward east.



Figure 11. West façade of house looking northeast.



Figure 12. Short drive leading to garage with house to the north.



Figure 13. Primary (west) façade of house looking east.



Figure 14. Roof detail showing gable end and chimney.



Figure 15. West façade showing shed addition to the south.



Figure 16. West façade of north side-facing gable.



Figure 17. East façade showing additions, looking west.



Figure 18. Detail of shed additions at the rear of the property.



Figure 19. View looking south showing sliding doors on east façade.



Figure 20. View of garage looking east.



Figure 21. East façade of garage looking west.



Figure 22. View of metal outbuilding and garage looking southeast.



Figure 23. Detail view of roll-up door on north façade of outbuilding.



Figure 24. Trees remaining from original orchard.

ATTACHMENT C: EIC RECORDS SEARCH SUMMARY

EASTERN INFORMATION CENTER

California Historical Resources Information System
Department of Anthropology, University of California, Riverside, CA 92521-0418
(951) 827-5745 - eickw@ucr.edu
Inyo, Mono, and Riverside Counties

January 31, 2019
CHRIS Access and Use Agreement No.:265
ST-RIV-5025

Sherri Andrews
ASM Affiliates, Inc.
20 N. Raymond Av., Ste. 220

Re: Cultural Resources Records Search for the ASM Affiliates, Inc. Project

Dear Mrs. Andrews:

We received your request on January17, 2019, for a cultural resources records search for the 13636 Nason Cultural Resources Study project located in Section 10, T.3S, R.3W, SBBM in the Moreno Valley area. We have reviewed our site records, maps, and manuscripts against the location map you provided.

Our records indicate that 34 cultural resources studies have been conducted within a one-mile radius of your project area. Two of these studies involved the project area. PDF copies of these reports are included for your reference. Nine additional studies provide overviews of cultural resources in the general project vicinity. All of these reports are listed on the attachment entitled "Eastern Information Center Report Listing", "Eastern Information Center Report Spreadsheet" and are available upon request at 15¢/page plus $40/hour for hard copies.

Our records indicate that 53 cultural resources properties have been recorded within a one-mile radius of your project area. None of these properties involved the project area. PDF copies of the records are included for your reference. All of these resources are listed on the attachment entitled "Eastern Information Center Resource Listing" and "Eastern Information Center Resource Spreadsheet".

The above information is reflected on the enclosed maps. Areas that have been surveyed are highlighted in yellow. Numbers marked in blue ink refer to the report number RI. Cultural resources properties are marked in red; numbers in black refer to Trinomial designations, those in green to Primary Number designations. National Register properties are indicated in light blue.

Additional sources of information consulted are identified below.

> National Register of Historic Places: no listed properties are located within the boundaries of the project area.

Office of Historic Preservation (OHP), Archaeological Determinations of Eligibility (ADOE): One property P-33-003223 [CA-RIV-3223] is listed and is not evaluated for inclusion on the National Register of Historic Places. The applicable portion of this directory is enclosed for your study needs.

Office of Historic Preservation (OHP), Directory of Properties in the Historic Property Data File (HPD): Two properties P-33-7277, and P-33-7280 are listed and are potentially eligible for inclusion on the National Register of Historic Places. One property P-33-7281 is listed and is not eligible but may be of local interest. The applicable portion of this directory is enclosed for your study needs.

A copy of the relevant portions of the 1943 USGS Perris 15', and 1901 USGS Elsinore topographic maps are included for your reference.

As the Information Center for Riverside County, it is necessary that we receive a copy of all cultural resources reports and site information pertaining to this county in order to maintain our map and manuscript files. Confidential information provided with this records search regarding the location of cultural resources outside the boundaries of your project area should not be included in reports addressing the project area.

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

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

Sincerely,

Sabrina Fajardo
Information Officer

Enclosures

ATTACHMENT D: NAHC AND NATIVE AMERICAN CORRESPONDENCE
[CONFIDENTIAL]

ATTACHMENT E: DPR FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z
Other Listings
Review Code Reviewer Date

Page 1 of 5 ***Resource Name or #:** 13636 Nason Street
P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County:** Riverside **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Sunnymead **Date** 1980 S.B. **B.M.**
c. Address 13636 Nason Street City Moreno Valley Zip 92555
d. UTM: (give more than one for large and/or linear resources) Zone mE/ mN;
e. Other Locational Data: (e.g. parcel#, directions to resource, elevation, etc.) APN 488-190-034

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property at 13636 Nason Street is located in the city of Moreno Valley on a 9-acre parcel on the east side of Nason Street between Cottonwood Avenue to the north and Bay Avenue to the south. In addition to some temporary shed buildings, there are three permanent structures on the parcel: a single-family residence, a garage, and an agricultural outbuilding. All of the buildings are located behind a chain link fence that surrounds the northwest corner of the parcel. A short driveway leads to the garage with the outbuilding to the south and the house to the north. The 1,753-square-foot home was constructed in 1942 in a Minimal Traditional style. It has a rectangular plan and rests on a concrete slab foundation. The house is clad in stucco which may be covering the original clapboard siding. The moderately pitched gable on hip roof is covered with asphalt shingles with slightly overhanging eaves. The front gable contains a small vent and there is a brick chimney located just to the north. It appears that the south shed roof portion of the house was added after the initial construction when the house would have had a square plan. Two concrete steps lead to the main entrance on the west (primary) façade. Two aluminum slider replacement sash windows flank the entrance on this façade.
(continued on pg. 3)

***P3b. Resource Attributes:** (List attributes and codes) HP2. Single Family Residence
***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)
P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



P5b. Description of Photo: (view, date, accession#)
View of west façade looking east.
Photo taken on February 7, 2019.

***P6. Date Constructed/Age and Source:**
☒ Historic ☐ Prehistoric ☐ Both
1942
Riverside County Assessor's Office

***P7. Owner and Address:**
David Lantz
12145 Nason Street
Moreno Valley, CA 90048

***P8. Recorded by:** (Name, affiliation, and address)
Laura Taylor Kung
ASM Affiliates, Inc.
20 North Raymond Avenue, Suite 220
Pasadena, CA 91103

***P9. Date Recorded:** February 7, 2019

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (cite survey report and sources or enter "none.")
Cultural Resources Evaluation Letter Report for the Proposed Elementary School at Nason Street and Bay Avenue, City of Moreno Valley, Riverside County, California (2019), ASM Affiliates, Inc.

***Attachments:** ☐ NONE ☐ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☒ Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary # _____
HRI # _____

***NRHP Status Code** 6Z
***Resource Name or #** (Assigned by recorder) 13636 Nason Street

B1. Historic Name:
B2. Common Name:
B3. Original Use: Single-Family Residence
B4. Present Use: Single-Family Residence
***B5. Architectural Style:** Minimal Traditional
***B6. Construction History:** **(Construction date, alterations, and date of alterations)** Constructed in 1942; Rear additions 1968

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:**
B9a. Architect: b. Builder: Unknown
***B10. Significance: Theme** N/A **Area:** Moreno Valley

Period of Significance: N/A **Property Type:** Residential **Applicable Criteria:** N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Three buildings on the property are older than 45 years: the house, the garage, and the agricultural outbuilding. All three buildings are recommended not eligible for the CRHR, neither individually nor as a contributor to any historic district under any criteria. The property does not collectively represent Moreno Valley's significant historic themes under any of the CRHR criteria. Therefore, the property at 13636 Nason Street is not a potential contributor to any historic district.

In consideration of the buildings' individual eligibility, 13636 Nason Street is not strongly associated with significant historic themes or events in Moreno Valley's history. Although the home was owned by the son of a pioneer farmer who planted several orchards in the area, the chain of title indicates that Carl Walfred Lantz did not own the home at the time of construction. As it was built in 1942, it is not the original homestead associated with the Lantz family, which was built in 1900 following a fire. Thus, the buildings at 13636 Nason Street are recommended not eligible for the CRHR under Criterion 1. The home is closely associated with the Lantz family, who have owned it since 1955. Although prominent in the Moreno Valley area as farmers and landowners, the house itself is not the most representative of the family's residence in the area.

(continued on pg. 4)

B11. Additional Resource Attributes: (List attributes and codes) None

***B12. References:** See report

B13. Remarks: None

***B14. Evaluator:** Laura Taylor Kung and Sherri Andrews
ASM Affiliates, Inc.

***Date of Evaluation:** April 2019

(This space is reserved for official comments)

Sketch Map with north arrow required.



P3a. Description (continued from pg. 1)

A side-facing gable wing is located on the north side of the house. Fenestration consists of three aluminum-frame sash that are replacements of the originals. The rear (east) façade of the house shows evidence of further additions and alternations. There are three shed additions beneath the main gable. One of these contains a small aluminum slider sash window. The windows in the gable section are also aluminum-framed slider sash. There is a small window that has been boarded over in the gable end, in addition to a small vent similar to the one on the front. There is a sliding glass door accessed by the three concrete steps on the east façade of the side gable wing.

The garage is a simple one-story wood frame building with a front-facing gable roof. The roof has a thick fascia and is covered with asphalt shingles. Two roll-up doors that have been replaced are located on the west façade. A rectangular vent is located in the gable end on this façade with an additional vent located on the east façade.

The outbuilding has a corrugated metal gable roof with a flat awning section to the west. The walls are also corrugated metal with a large roll-up door on the north façade. There is an additional standard entrance located just east of the utility door.

Although the entire parcel used to be used as an orchard, the only trees remaining are immediately adjacent to the buildings to the south and east. In addition to the remaining trees, a number of related irrigation-related features are situated along the north edge of the parcel as well as along the north edge of the remaining trees; however, these features are in disrepair and are no longer in use.

Site-Specific History: 13636 Nason Street

The property is located on the east side of Nason Street north of Bay Avenue and south of Cottonwood Avenue. It is described as Lot 5 in Block 92 of land originally owned by the Bear Valley and Alessandro Development Company. The parcel consists of nearly nine acres, with the house located in the northwest corner and separated by a chain link fence. Some parcels in the area have been subdivided as housing developments.

Although an original building permit was not located, assessor records indicate that the house was constructed in 1942. Deeds were searched back to 1940, but the first recorded deed dates to 1947 when the property was transferred from Jackson Ranch to Roger Fife. There was a Fife family based in Riverside that were well-known evangelicals, but no one named Roger could be located. Additionally, no one at the Moreno Valley Historical society was aware of anyone of this name, and Jackson Ranch was also unknown.

Roger Fife sold the property to C. W. Lantz in 1955. Carl Walford Lantz was the son of Moreno Valley pioneer, Carl Oscar Lantz. The elder Lantz was born in Småland, Sweden in 1867. He emigrated in 1885, traveling from Liverpool, England, to New York on the *Britannic*. He moved to Iowa and then Riverside before arriving in Moreno Valley in 1891. He purchased 10 acres near the corner of Nason Street and Alessandro Boulevard and first attempted to plant grapes. After a grasshopper invasion he turned to oranges and planted the first grove in the valley. In 1895, he married Hilma Alexina Isakson and they built a home on their acreage. Their son Carl Walford was born on July 26, 1899. The following year, a fire started in the kitchen while Hilma was out hanging clothes and their house was completely destroyed. Oscar decided to buy a new house, and have it moved to his acreage with the help of his neighbors who rendered every assistance “to see them soon again in a home of their own.” Moreno Valley entered a dry cycle at the turn of the century that caused most residents to move to Riverside. Oscar Lantz was one of the few people to stay and build wells to irrigate his orchards. He and Hilma had a daughter, Alice (1904-1976) and he continued to be active in the community, working as the assistant farm advisor for Riverside County and serving as president of the Moreno Water Company.

Oscar and his son Carl began to purchase surrounding acres for more orange and olive groves. By the time of his death in 1957, Oscar Lantz owned 335 acres, 165 of which were planted with citrus. Carl Walford married Mary Lee Riggs, a recent graduate from UCLA, in 1936. Mary Lee was the daughter of a Los Angeles minister and sister of the tennis player Bobby Riggs. She arrived in Moreno Valley in 1931 and began teaching at the Midland School that same year. Carl Walford also began to purchase surrounding acres when he could, describing it as a kind of hobby, until his ranch included 1,000 acres. The property at 13636 Nason Street appears to be one of the parcels he purchased as part of the expansion of the ranch. The 1940 census lists the family as living on Nason Street with Oscar Lantz living next door. Since the house at 13636 was not constructed until 1942, they were clearly living at a different location on the street. Carl and Mary Lee had three sons: Carl Robert (1938-2017), David Leland born in 1940, and John Walfred born in 1944. Mary Lee Lantz taught at the local school until the mid-1960s. When Carl Walfred died in 1996, the property at 13636 Nason Street was left to his wife and son David. When Mary Lee Lantz passed away in 2000, the property was transferred to David and his wife Judith. Although it is occasionally listed as an address associated with David Lantz, it appears that the property was frequently rented out. Aerial photos indicate the orchard surrounding the house was removed sometime between 2002 and 2005.

***B10. Significance** (continued from page 2)

All city directory listings for Carl Walfred Lantz list an address in the 12000 block of Nason Street, north of Route 60. It appears that the property was rented out for several years and therefore is not directly associated with the lives of the Lantz family. Therefore, the buildings are recommended not eligible for the CRHR under Criterion 2. The house 13636 Nason Street is an example of the Minimal Traditional style and has elements, such as the hipped roof and lack of decorative detailing, that are associated with that style. However, it has had several alterations in addition to the replacement of all the windows which have impacted the integrity of the building. The outbuildings are common vernacular structures without a particular style. Furthermore, no evidence was found that the buildings are the work of a master architect or a noted local architect. Therefore, the buildings at 13636 Nason Street are recommended not eligible for the CRHR under Criterion 3. The buildings at 13636 Nason Street are recommended not eligible under CRHR Criterion 4. They are common property types that do not have the potential to provide information about history or prehistory that is not available through historic research.

As the buildings at 13636 Nason Street are recommended not eligible for the CRHR either individually or as contributors to a historic district, they are not historical resources for the purposes of CEQA.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH SHEET

Primary # _____
HRI # _____
Trinomial _____

 ***Resource Name or # (Assigned by recorder)** 13636 Nason Street
Recorded by: Laura Taylor Kung **Date:** April 2019
☒ Continuation ☐ Update



Image 1. East façade looking southwest



Image 2. Oblique view looking northeast.



Image 3. Outbuilding looking southeast.



Image 4. Garage looking east.



Image 5. Irrigation features along north edge of parcel looking west.



Image 6. Feature close-up.

ATTACHMENT F: PALEONTOLOGICAL RESOURCE ASSESSMENT

PALEOSERVICES
SAN DIEGO NATURAL HISTORY MUSEUM

Paleontological Resource Assessment

Proposed Elementary School at Nason St. & Bay Ave.
City of Moreno Valley
Riverside County, California

March 5, 2019

Prepared for:
ASM Affiliates, Inc.
20 N. Raymond Avenue, Suite 220
Pasadena, California 91103

Prepared by:
Department of PaleoServices
San Diego Natural History Museum
1788 El Prado
San Diego, California 92101

Katie M. McComas, M.S., Paleontological Report Writer
Thomas A. Deméré, Ph.D., Principal Paleontologist

thenat | SAN DIEGO NATURAL HISTORY MUSEUM

Executive Summary

This technical report provides an assessment of paleontological resources at the Proposed Elementary School at Nason St. & Bay Ave. Project (Project) site in the City of Moreno Valley, Riverside County, California. The purpose of this report is to identify and summarize paleontological resources that occur within the vicinity of the Project site, identify Project elements (if any) that may negatively impact paleontological resources, and provide recommendations to reduce any potential negative impacts to less than significant levels, if necessary. The report includes the results of institutional records searches conducted at the Western Science Center (WSC) and San Diego Natural History Museum (SDNHM).

The approximately 9 acre Project site is located in the northern portion of the City of Moreno Valley, and is bordered to the west by Nason Street, to the south by Bay Avenue, to the east by agricultural land, and to the north by an existing church property. Proposed work at the site will include construction of a new elementary school consisting of approximately 32 classrooms in a two-story building, outdoor recreation areas, and staff and visitor parking areas, along with associated underground utilities. Specific details on planned earthwork at the site are undefined, but site-wide remedial over-excavation earthwork is anticipated.

Published geologic mapping for the Project site indicates the site is underlain by Quaternary very old alluvial-fan deposits (Qvof). The alluvial fan deposits are considered to be early Pleistocene in age (~2.6 million to 780,000 years old) at the surface.

No recorded fossil collection localities at WSC or SDNHM are known from within a 1-mile radius of the Project site. However, WSC reports multiple fossil localities in similar Pleistocene-age alluvial deposits located less than two miles northeast of the proposed Project site that produced fossil remains of giant ground sloth (*Megalonyx jeffersonii*), camelid (*Hemiauchenia*), and horse (*Equus*) from deposits exposed between 11 and 13 feet below the surface. In addition, significant fossils were discovered approximately 18 miles to the southeast of the Project site in Pleistocene-age braided stream and lake deposits exposed during construction of the Diamond Valley Lake project. Recovered fossils from this project consist of large-bodied “Ice Age” mammals (e.g., ground sloth, weasel, skunk, badger, wolf, sabertoothed cat, American lion, puma, peccary, camel, pronghorn antelope, deer, bison, mastodon, and mammoth). Further, the San Bernardino County Museum (SBCM) reports several recorded paleontological collection localities in the City of Menifee, approximately 18 miles to the south of the Project site. These fossil localities yielded fossil remains of western camel (*Camelops hesternus*) and small-bodied vertebrates including lizards, rodents, and rabbits.

A high paleontological sensitivity is assigned to Quaternary very old alluvial-fan deposits underlying the entire Project site. This assignment is supported by the occurrence of known fossils in the City of Moreno Valley and elsewhere in western Riverside County. The high sensitivity (category B) rating assigned to these deposits by the County of Riverside specifically notes that fossils are likely to be encountered at or exceeding 4 feet below surface grade.

Construction of the proposed Project has the potential to impact paleontological resources during earthwork within Quaternary very old alluvial-fan deposits at or exceeding 4 feet below surface grade. Thus, implementation of a paleontological mitigation program centered around paleontological monitoring is recommended, as outlined in the provided Mitigation Measures 1–7. Implementation of the paleontological mitigation program will reduce any Project-related impacts to paleontological resources to a level that is less than significant.

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Appendix **11**

1.0 Introduction

1.1 Project Description and Scope of Work

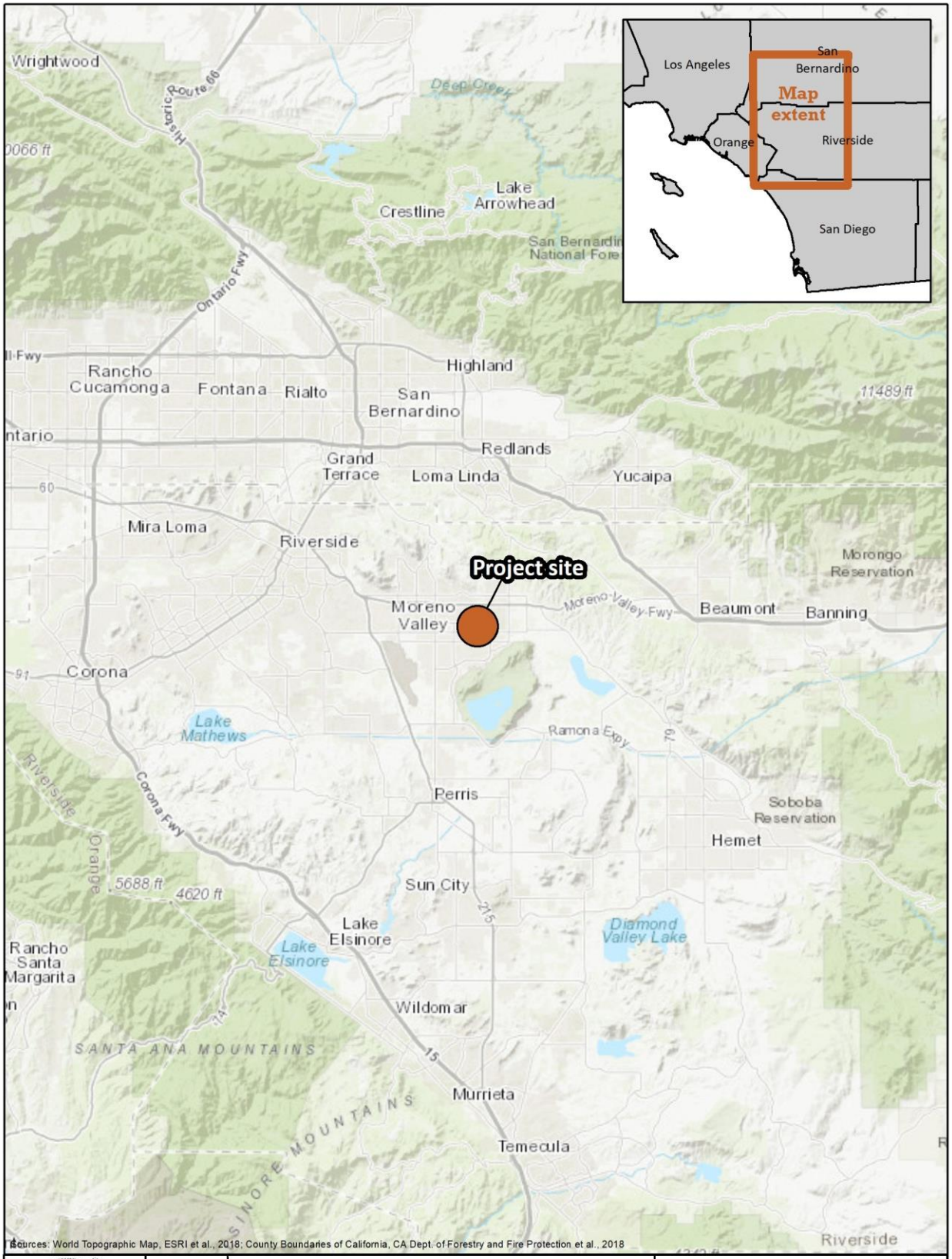
This technical report provides an assessment of paleontological resources at the Proposed Elementary School at Nason St. & Bay Ave. Project (Project) site in the City of Moreno Valley, Riverside County, California (Figure 1). The approximately 9 acre Project site is located in the northern portion of the City of Moreno Valley, and is bordered to the west by Nason Street, to the south by Bay Avenue, to the east by agricultural land, and to the north by an existing church property. Proposed work at the site will include construction of a new elementary school consisting of approximately 32 classrooms in a two-story building, outdoor recreation areas, and staff and visitor parking areas, along with associated underground utilities. Specific details on planned earthwork at the site are currently undefined.

Because the Project site occurs in an area underlain by native sedimentary deposits, a paleontological resource assessment was conducted in order to evaluate whether the proposed Project has the potential to negatively impact paleontological resources. This assessment report is intended to summarize existing paleontological resource data at the Project site, discuss the significance of these resources, evaluate possible Project-related impacts to paleontological resources, and provide recommendations to reduce any impacts to paleontological resources to less than significant levels (if necessary). The assessment also presents the results of institutional records searches of the paleontological collections at the Western Science Center (WSC) and San Diego Natural History Museum (SDNHM). This report was prepared by Katie M. McComas and Thomas A. Deméré of the Department of PaleoServices, SDNHM.

1.2 Definition of Paleontological Resources

As defined here, paleontological resources (i.e., fossils) are the buried remains and/or traces of prehistoric organisms (i.e., animals, plants, and microbes). Body fossils such as bones, teeth, shells, leaves, and wood, as well as trace fossils such as tracks, trails, burrows, and footprints, are found in the geologic deposits within which they were originally buried. The primary factor determining whether an object is a fossil or not isn't how the organic remain or trace is preserved (e.g., "petrified"), but rather the age of the organic remain or trace. Although typically it is assumed that fossils must be older than ~10,000 years (i.e., the generally accepted end of the last glacial period of the Pleistocene Epoch), organic remains of early Holocene age can also be considered to represent fossils because they are part of the record of past life.

Fossils are considered important scientific and educational resources because they serve as direct and indirect evidence of prehistoric life and are used to understand the history of life on Earth, the nature of past environments and climates, the membership and structure of ancient ecosystems, and the pattern and process of organic evolution and extinction. In addition, fossils are considered to be non-renewable resources because typically the organisms they represent no longer exist. Thus, once destroyed, a particular fossil can never be replaced. And finally, for the purposes of this report, paleontological resources can be thought of as including not only the actual fossil remains and traces, but also the fossil collecting localities and the geologic units containing those localities.


Los Angeles
San Bernardino
Map extent
Orange
Riverside
San Diego
Project site
Wrightwood
Crestline
Lake Arrowhead
Highland
Rancho Cucamonga
Fontana
Rialto
San Bernardino
Grand Terrace
Loma Linda
Redlands
Yucaipa
Mira Loma
Riverside
Moreno Valley
Beaumont
Banning
Corona
Lake Mathews
Perris
Sun City
Lake Elsinore
Diamond Valley Lake
Hemet
Soboba Reservation
Morongo Reservation
Rancho Santa Margarita
Wildomar
Murrieta
Temecula
SANTA ANA MOUNTAINS
Sources: World Topographic Map, ESRI et al., 2018; County Boundaries of California, CA Dept. of Forestry and Fire Protection et al., 2018
PaleoServices
FIGURE 1
Index Map
Proposed Elementary School at Nason St. & Bay Ave.
City of Moreno Valley, Riverside County, California
0
7.5
scale in miles
N

1.3 Regulatory Framework

Paleontological resources are considered scientifically and educationally significant nonrenewable resources, and as such they are protected under a variety of federal (e.g., Antiquities Act of 1906; National Environmental Policy Act of 1969; Federal Land Policy Management Act of 1976; Paleontological Resources Preservation Act of 1009), state (e.g., California Environmental Quality Act; Public Resources Code), and local (e.g., City of Moreno Valley General Plan, County of Riverside General Plan) laws, regulations, and ordinances.

The Project site is located within the City of Moreno Valley, Riverside County; therefore, local laws, ordinances, and regulations are applicable, as outlined below.

1.3.1 Local

The County of Riverside General Plan contains extensive information, policies, guidelines, and recommendations concerning the treatment of paleontological resources (County of Riverside, 2015).

The City of Moreno Valley General Plan (Chapter 9, Section 9.7.3 Conservation Element 7-6) sets forth the goal of reducing potential impacts to archaeological or paleontological resources in areas where they are "known or reasonably expected to exist, based on the citywide survey conducted by the UCR Archaeological Research Unit". The Final Program EIR incorporating the results of the referenced survey provides mapping that summarizes areas of High, Low, and Undetermined paleontological resource sensitivity (City of Moreno Valley, 2006).

2.0 Methods

2.1 Paleontological Records Search and Literature Review

Paleontological records searches were conducted at the WSC and SDNHM in order to determine if any documented fossil collection localities occur within the Project site or immediate surrounding area. The SDNHM records search involved examination of the SDNHM paleontological database for any records of known fossil collection localities within a 1-mile radius of the Project site. A records search of the paleontological collections at WSC was also completed (Western Science Center, 2019; Appendix). Although a formal records search of the San Bernardino County Museum paleontological database would also have been useful, that institution is currently not providing such services.

Additionally, a review was conducted of relevant published geologic maps (e.g., Morton and Matti, 2001; Morton and Miller, 2006), published geological and paleontological reports (e.g., Jefferson, 1991a,b; Reynolds and Reynolds, 1991; Springer et al., 2009, 2010), and other relevant literature (e.g., field trip guidebooks, theses and dissertations, unpublished paleontological mitigation reports). This approach was followed in recognition of the direct relationship between paleontological resources and the geologic units within which they are entombed. Knowing the geologic history of a particular area and the fossil productivity of geologic units that occur in that area, it is possible to predict where fossils may, or may not, be encountered.

2.2 Paleontological Resource Assessment Criteria

The County of Riverside has developed standards for assessing paleontological potential/sensitivity that are based, in part, on the standards set forth by Society of Vertebrate Paleontology (SVP, 2010), and that also take into account the possibility for adverse impacts due to human influence. The County recognizes a tripartite scale: High Potential (High A and High B subcategories), Low Potential, and Undetermined Potential.

The City of Moreno Valley General Plan EIR (July 2006) adopted the County of Riverside paleontological resource standards, with the exception that the City does not distinguish subcategories within the High Sensitivity category.

The specific criteria for each scale of Paleontological Sensitivity is outlined below.

2.2.1 High Potential/Sensitivity

High sensitivity is assigned to geologic units known to contain paleontological localities with rare, well-preserved, critical fossil materials for stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleobiology and evolutionary history (phylogeny) of animal and plant groups. Generally speaking, highly sensitive formations produce vertebrate fossil remains or are considered to have the potential to produce such remains.

In Riverside County, High Paleontological Potential A is assigned to rock units present immediately at the surface, while High Paleontological Potential B is assigned to rock units found at a depth of 4 feet or greater below existing grade.

2.2.2 Low Potential/Sensitivity

Low sensitivity is assigned to geologic units that, based on their relative youthful age and/or high-energy depositional history, are judged unlikely to produce important fossil remains. Typically, low sensitivity formations produce invertebrate fossil remains in low abundance. Low paleontological potential is also assigned to geologic formations that are entirely igneous in origin and therefore have no potential for producing fossil remains, or to artificial fill materials which lose the stratigraphic/geologic context of any contained organic remains (e.g., fossils).

2.2.3 Undetermined Potential/Sensitivity

Undetermined sensitivity is assigned to geologic units that exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the geology and/or paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may be useful for more precisely determining the paleontological sensitivity.

2.3 Paleontological Impact Analysis

Direct impacts to paleontological resources occur when earthwork activities (e.g., mass grading, utility trenching), cut into the geologic units within which fossils are buried, and physically destroy the fossil remains. As such, only earthwork activities that will disturb potentially fossil-bearing sedimentary deposits (i.e., those rated with a high or undetermined paleontological sensitivity) have the potential to significantly impact paleontological resources. Paleontological mitigation typically is recommended to reduce any negative impacts to paleontological resources to less than significant levels.

The purpose of the impact analysis is to determine which (if any) of the proposed Project-related earthwork activities may disturb potentially fossil-bearing geologic units, and where and at what depths this earthwork will occur. The paleontological impact analysis involved analysis of available project documents, and comparison with geological and paleontological data gathered during the records searches and literature review.

3.0 Existing Conditions: Geologic Setting

The proposed Project site is located within the Perris Block of the Peninsular Ranges Geomorphic Province (English 1926; Norris and Webb, 1990). This structural block is surficially expressed as a relatively low relief, weathered basin punctuated by hills and small mountains, and surrounded by the Sana Ana Mountains to the west and south, the San Jacinto Mountains to the east, and the San Gabriel and San Bernardino Mountains to the north. The Perris Block is a fault-controlled region, with the San Jacinto Fault to the northeast and the Elsinore Fault to the southwest. Faulting is responsible for the uplift of the surrounding mountain ranges, and the down drop of the Perris Block. As a consequence, the surrounding mountain ranges are actively being eroded, and the sediments derived from this erosion are being deposited in the basin lowlands as alluvial fans and/or stream channel deposits. These surficial deposits overlie a deeply weathered mass of Cretaceous plutonic igneous rocks of the Peninsular Ranges Batholith and older metasedimentary basement rocks.

4.0 Results

4.1 Results of the Records Searches and Literature Review

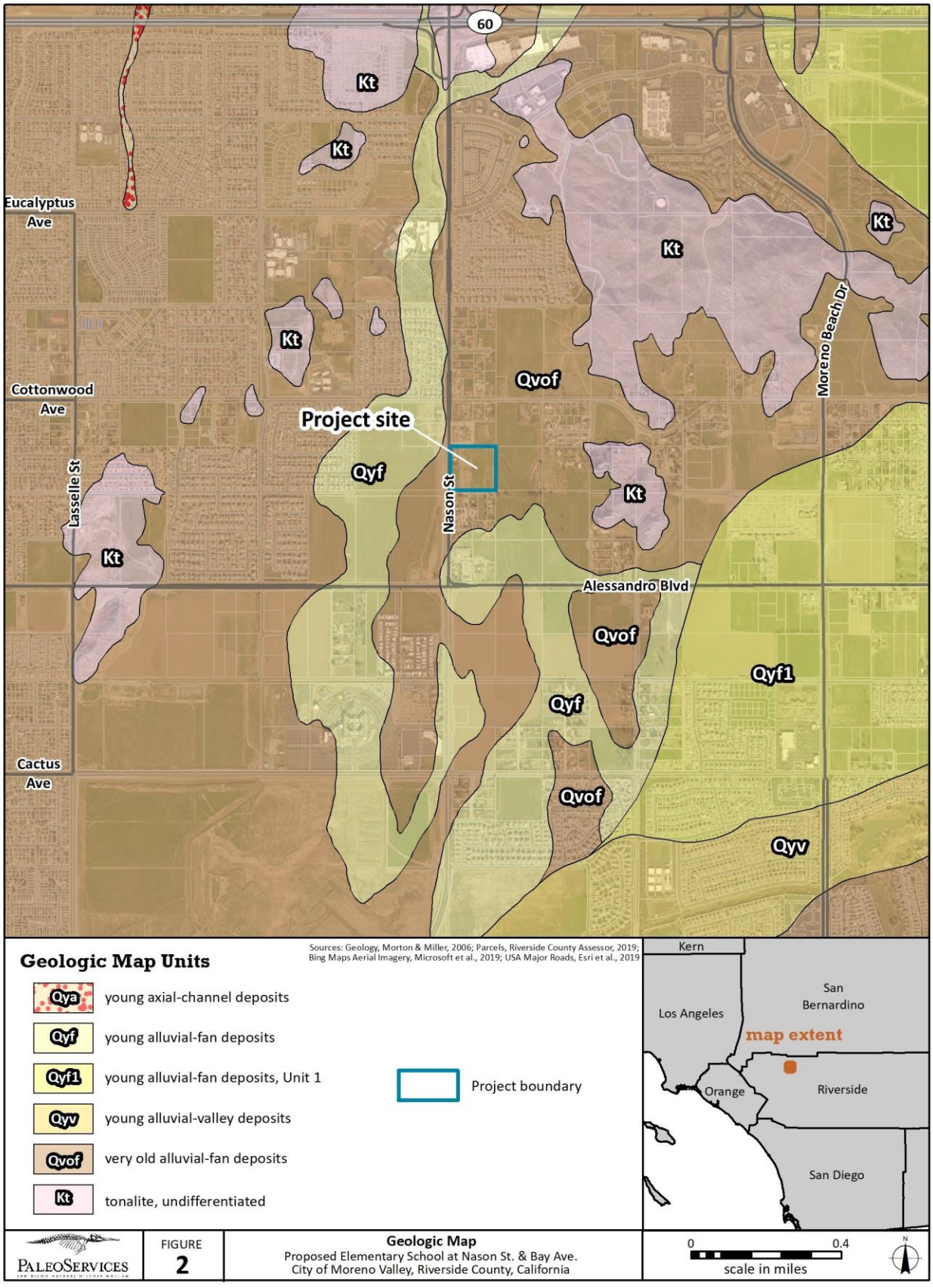
4.1.1 Project Geology

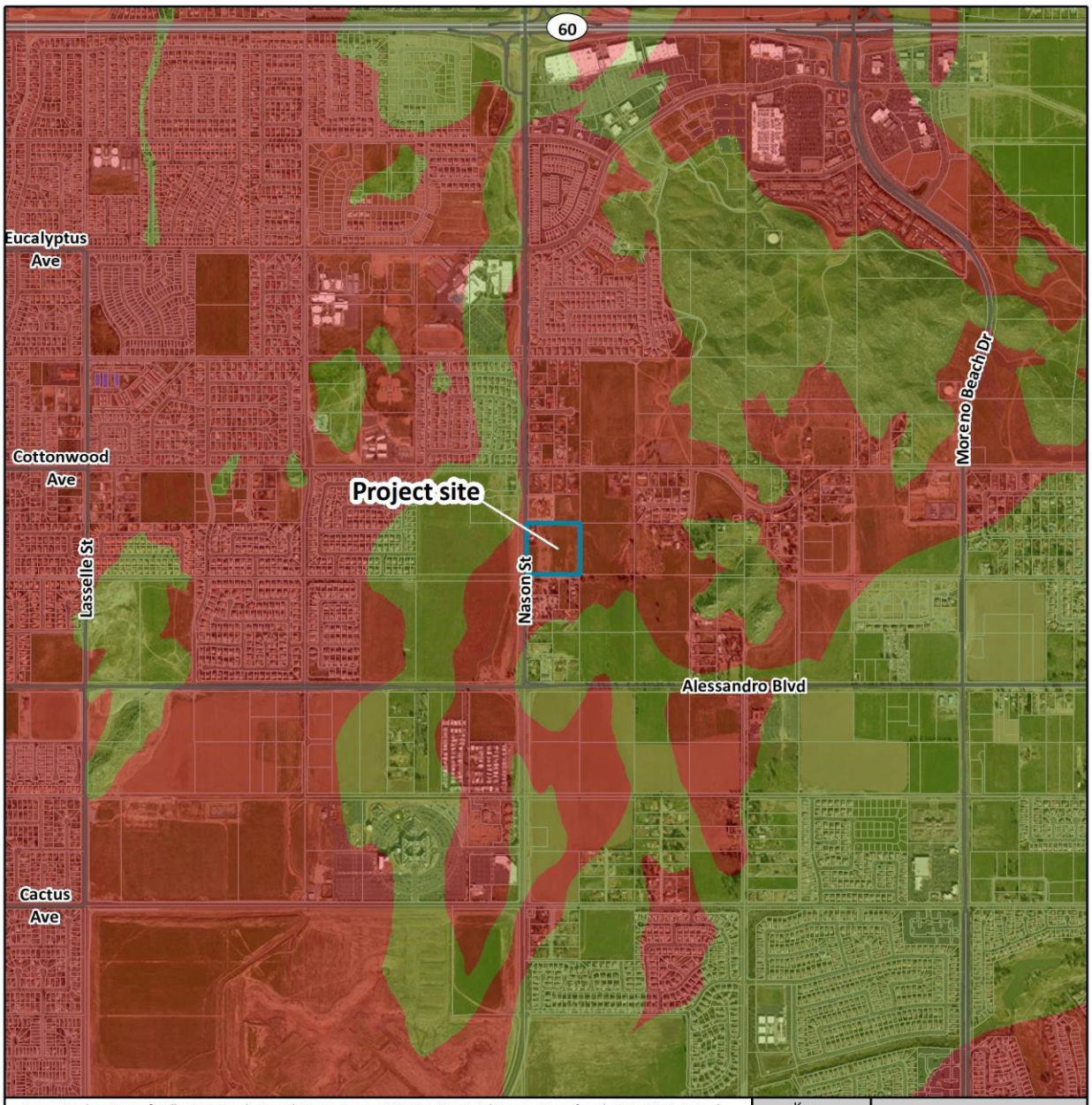
Published geologic mapping indicates that the Project site is entirely underlain by Quaternary very old alluvial fan deposits (Qvof) of early Pleistocene age (Figure 2; Morton and Matti, 2001; Morton and Miller, 2006). These deposits were likely deposited by the ancient San Jacinto River or one of its tributaries. The modern floodplain of the San Jacinto River occurs to the north of the Project site. Morton and Matti (2001) described the Quaternary very old alluvial fan deposits as dissected and indurated “reddish-brown sand deposits, containing minor gravel”.

4.1.2 Project Paleontology

A records search request of paleontological collections data at the WSC generated a response that there are no recorded WSC fossil collection localities within a one mile radius of the proposed Project site, but noted that multiple fossil localities were documented in similar Pleistocene-age alluvial deposits during construction of the Aldi Distribution Center, located less than two miles northeast of the proposed Project site (WSC, 2019; Appendix). These localities produced fossil remains of giant ground sloth (*Megalonyx jeffersonii*), camelid (*Hemiauchenia*), and horse (*Equus*) from deposits exposed between 11 and 13 feet below the surface (D. Radford, pers. comm., 21 February 2019). There are no SDNHM fossil collection localities known from within a one mile radius of the Project site.

In addition, significant fossils were discovered approximately 18 miles to the southeast of the Project site in Pleistocene-age braided stream and lake deposits exposed during construction of the Diamond Valley Lake project. Recovered fossils consist of large-bodied “Ice Age” mammals (e.g., ground sloth, weasel, skunk, badger, wolf, sabertoothed cat, American lion, puma, peccary, camel, pronghorn antelope, deer, bison, mastodon, and mammoth) (Springer et al., 2009, 2010). Further, the San Bernardino County Museum (SBCM) reports several recorded paleontological collection localities in the northeastern and eastern portions of the City of Menifee, approximately 18 miles south of the Project site. These fossil localities yielded fossil remains of western camel (*Camelops hesternus*) and small-bodied vertebrates including lizards, rodents, and rabbits (SBCM, 2010).


60
Kt
Eucalyptus Ave
Cottonwood Ave
Lasselle St
Nason St
Moreno Beach Dr
Project site
Qyf
Qvof
Alessandro Blvd
Qyf1
Qyv
Cactus Ave
Geologic Map Units
Sources: Geology, Morton & Miller, 2006; Parcels, Riverside County Assessor, 2019; Bing Maps Aerial Imagery, Microsoft et al., 2019; USA Major Roads, Esri et al., 2019
Qya young axial-channel deposits
Qyf young alluvial-fan deposits
Qyf1 young alluvial-fan deposits, Unit 1
Qyv young alluvial-valley deposits
Qvof very old alluvial-fan deposits
Kt tonalite, undifferentiated
Project boundary
Kern
Los Angeles
San Bernardino
map extent
Orange
Riverside
San Diego
PaleoServices
FIGURE 2
Geologic Map
Proposed Elementary School at Nason St. & Bay Ave.
City of Moreno Valley, Riverside County, California
0
0.4
scale in miles
N


60
Eucalyptus Ave
Cottonwood Ave
Project site
Lasselle St
Nason St
Moreno Beach Dr
Alessandro Blvd
Cactus Ave
Sources: Geology, Morton & Miller, 2006; Parcels, Riverside County Assessor, 2019; Bing Maps Aerial Imagery, Microsoft et al., 2019; USA Major Roads, Esri et al., 2019
Paleontological Sensitivity Rating
high sensitivity
low sensitivity
Project boundary
Kern
Los Angeles
San Bernardino
map extent
Orange
Riverside
San Diego
PaleoServices
FIGURE 3
Paleontological Sensitivity Map
Proposed Elementary School at Nason St. & Bay Ave.
City of Moreno Valley, Riverside County, California
0
0.4
scale in miles
N

4.2 Results of Paleontological Sensitivity Analysis

The City of Moreno Valley General Plan EIR (City of Moreno Valley, 2006) neglects to consider the recovery of significant vertebrate fossils from Pleistocene-age alluvial deposits in this area, instead assigning all alluvial deposits exposed across the valley floor a low paleontological potential. The County of Riverside General Plan (County of Riverside, 2015), in contrast, assigns these deposits a high sensitivity (category B), indicating that fossils are likely to be encountered at or exceeding 4 feet below surface grade.

The high paleontological sensitivity (category B) rating assigned to Quaternary very old alluvial fan deposits (Qvof) by the County of Riverside (Figure 3) is supported by the known occurrence of fossils in the City of Moreno Valley (Appendix), and elsewhere in western Riverside County.

4.3 Results of Paleontological Impact Analysis

The specific details on planned earthwork at the site are currently unavailable. Generally, any earthwork activities at or exceeding 4 feet below surface grade are likely to directly impact paleontological resources preserved within the Quaternary old alluvial fan deposits (high paleontological sensitivity) that underlie the entire Project site. Such excavations may include, but are not limited to, remedial over-excavation of the site and excavations for subgrade utilities.

5.0 Recommendations & Conclusions

Implementation of a paleontological mitigation program, in the form of paleontological monitoring, is recommended for earthwork at the Project site that will directly impact Quaternary very old alluvial fan deposits. Implementation of the following mitigation measures will reduce any Project-related impacts to paleontological resources to a level that is less than significant.

5.1 Mitigation Measures

1. A qualified Project Paleontologist should attend the pre-construction meeting to consult with grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues.

   A qualified Project Paleontologist is defined as an individual with an M.S. or Ph.D. in paleontology or geology that is experienced with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of Riverside County, and who has worked as a paleontological mitigation project supervisor for at least 1 year.

2. A paleontological monitor should be on-site during all earthwork operations at or exceeding 4 feet below surface grade that directly impact Quaternary very old alluvial fan deposits. The paleontological monitor should be equipped to salvage fossils as they are unearthed, to avoid construction delays, and to remove samples of sediments that are likely to contain small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens. Paleontological monitoring may be reduced (e.g., part-time monitoring or spot-checking) or eliminated, at the discretion of the Project Paleontologist and in consultation with appropriate agencies (e.g., Project proponent, City of Moreno Valley representatives). Changes to the paleontological monitoring schedule shall be based on the results of the mitigation program as it unfolds during site development, and current and anticipated conditions in the field.

A paleontological monitor is defined as an individual with a college degree in paleontology or geology who has experience in the recognition and salvage of fossil materials. The paleontological monitor should work under the direction of a Project Paleontologist.

3. If fossils are discovered, the Project Paleontologist (or paleontological monitor) should make an initial assessment to determine their significance. All identifiable vertebrate fossils (large or small), uncommon invertebrate, plant, and trace fossils are considered to be significant and should be recovered (SVP, 2010). Representative samples of common invertebrate plant and trace fossils should also be recovered. Although fossil salvage can often be completed in a relatively short period of time, the Project Paleontologist (or paleontological monitor) should be allowed to temporarily direct, divert, or halt earthwork during the initial assessment phase. If it is determined that the fossil(s) should be recovered, all effort should be made to complete the recovery in a timely manner. It is important to keep in mind that some fossil specimens (e.g., a large mammal skeleton) may require an extended salvage period. Because of the potential for the recovery of small fossil remains (e.g., isolated teeth of small vertebrates), it may be necessary to collect bulk-matrix samples for screen washing.
4. In the event that fossils are discovered during a period when a paleontological monitor is not on site (i.e., an inadvertent discovery), earthwork within the vicinity of the discovery site shall temporarily halt, and the Project Paleontologist contacted to evaluate the significance of the discovery. If the inadvertent discovery is determined to be significant, the fossils shall be recovered, as outlined in Mitigation Measure 3.
5. Fossil remains collected during monitoring and salvage should be cleaned, repaired, sorted, taxonomically identified, and cataloged as part of the mitigation program. Fossil preparation may also include screen-washing of bulk matrix samples for microfossils or other laboratory analyses (e.g., radiometric carbon dating), if applicable. Fossil preparation and curation activities may be conducted at the laboratory of the contracted Project Paleontologist, at an appropriate outside agency, and/or at the designated repository, and shall follow the standards of the designated repository.
6. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, should be housed in an established, accredited museum repository with permanent, retrievable paleontological storage (e.g., Western Science Center). These procedures are also essential steps in effective paleontological mitigation and CEQA compliance. The Project Paleontologist must have a written repository agreement in hand prior to the initiation of mitigation activities. Mitigation of adverse impacts to significant paleontologic resources is not complete until such curation into an established, accredited museum repository has been fully completed and documented.
7. A final summary report should be completed that outlines the results of the mitigation program. The report and inventory, when submitted to the appropriate Lead Agency, along with confirmation of the curation of recovered specimens into an established, accredited museum repository, will signify completion of the program to mitigate impacts to paleontologic resources. A copy of the paleontological monitoring report should be submitted to the City of Moreno Valley and to the designated museum repository.

6.0 References

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Appendix

Records Search Results: Western Science Center

WESTERN SCIENCE CENTER

February 19, 2019

San Diego Natural History Museum
Katie McComas
P.O. Box 121390
San Diego, CA 92112-1390

Dear Ms. McComas,

This letter presents the results of a record search conducted for the proposed elementary school located at 13636 Nason Street in the city of Moreno Valley, Riverside County, California. The project site is located on Nason Street, south of Cottonwood Avenue in Section 10, Township 3 South, Range 3 West on the Sunnymead USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as very old alluvial fan deposits dating from the early Pleistocene period (Morton & Matti, 1996-1997). Alluvial fan units are considered to be of high paleontological sensitivity. The Western Science Center does not have localities within the project or within a one mile radius of the project area, but does have multiple fossil localities within a 2 mile radius of the project associated with the Aldi Distribution Center Project. The Aldi Distribution Center Project is in similarly mapped geologic units and resulted in multiple Pleistocene mammal fossil specimens from *Megalonyx jeffersonii*, *Hemiauchenia*, and *Equus*.

Any fossils recovered from the proposed project at 13636 Nason Street would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive early Pleistocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about the Aldi Distribution Center Project, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager

Appendix C Geological and Environmental Hazards Assessment Report

Appendices

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April 2019 | Geological and Environmental Hazards Assessment Report

PROPOSED MORENO VALLEY ELEMENTARY SCHOOL – NASON STREET

Moreno Valley Unified School District

Prepared for:

Moreno Valley Unified School District
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Director of Facilities
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Moreno Valley, California 92553

Prepared by:

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PLACEWORKS

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1. Introduction

1.1 INTRODUCTION

This report has been prepared for the development of a new elementary school (proposed project) and provides an evaluation on whether the proposed project conforms to the state school facility standards, which apply to state-funded new school facilities projects. The State of California's standards for school site selection are found in Title 5 of the California Code of Regulations (CCR) Section 14010; additional codes and regulations applicable to school facilities are found in the Education, Government, and Public Resources Codes.

1.2 PROJECT LOCATION

The project site (Site) is comprised of land that is primarily agricultural with a single-family residence, detached garage and barn located at 13636 Nason Street in the City of Moreno Valley, Riverside County, California (Assessor's Parcel Number [APN] 488-190-034). Regional access to the proposed school is provided by State Route 60 (SR-60), located to the north. Figure 1, *Regional Location*, and Figure 2, *Aerial Photograph*, show the project site in its regional and local contexts.

1.3 PROJECT DESCRIPTION

Moreno Valley Unified School District is evaluating the site located at 13636 Nason Street in Moreno Valley (Site) for possible site acquisition for a new school site. The Site is approximately 8.97 acres in size.

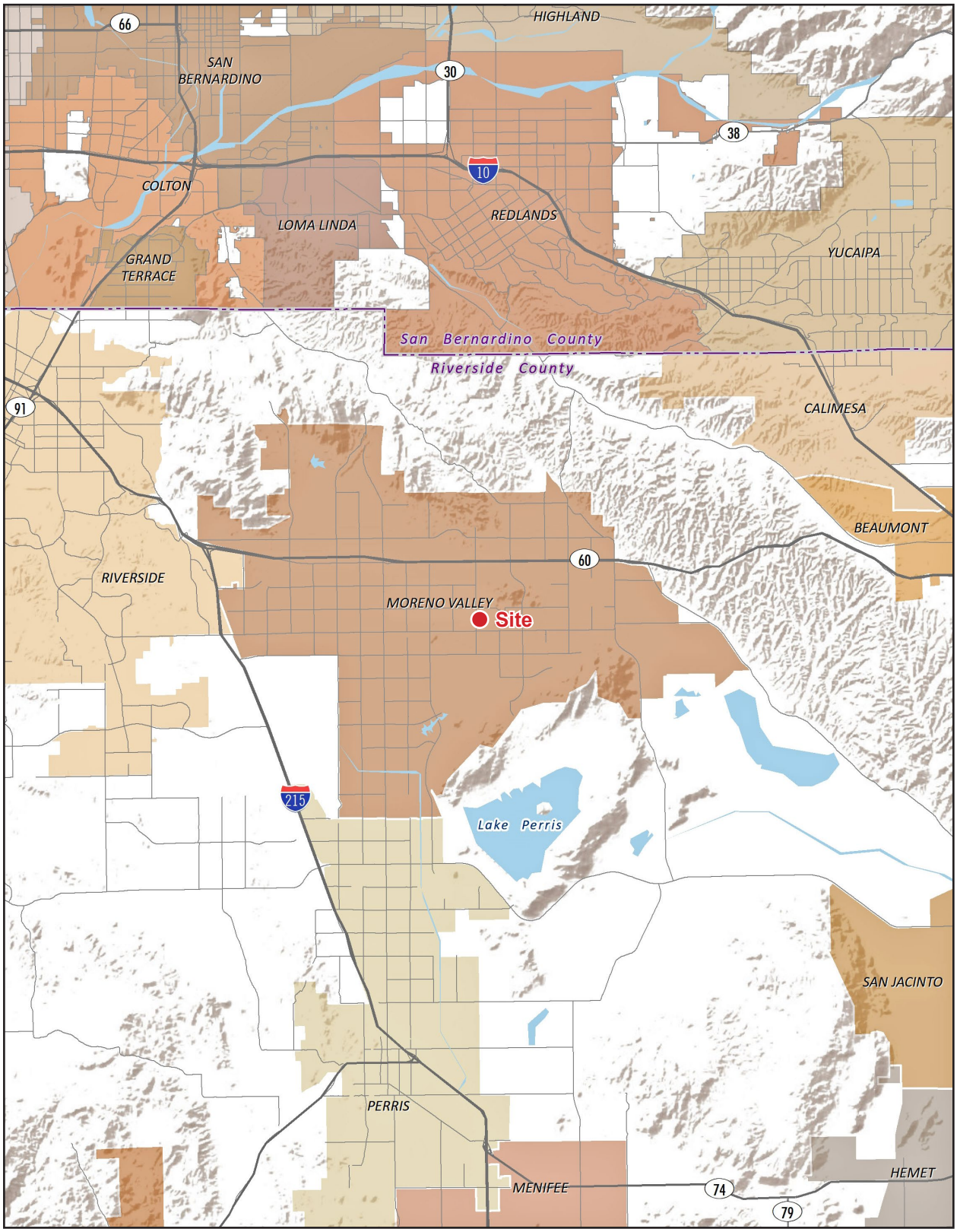
1.4 CONCLUSIONS/RECOMMENDATIONS

Based on a review of various information sources contained in this report, the environmental health and safety hazards evaluated for this report are not expected to create a significant hazard and no further evaluation is necessary.

1. Introduction

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Figure 1 - Regional Location



Note: Unincorporated county areas are shown in white.

Source: ESRI, 2018

0 3
Scale (Miles)

1. Introduction

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Figure 2 - Aerial Photograph



Project Boundary

0 200
Scale (Feet)

Source: ESRI, 2018

1. Introduction

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2. Environmental Checklist

2.1 STATE STANDARDS FOR SCHOOL FACILITIES

The State of California's standards for school site selection are found in Title 5 of the California Code of Regulations (CCR) Section 14010, and additional codes and regulations applicable to school facilities are located in the Education, Government and Public Resources Codes. The following checklist provides a list of questions and code citations related to State-funded new school facilities.

STATE STANDARDS CHECKLIST FOR STATE-FUNDED SCHOOL FACILITIES—
SCHOOL SITE APPROVAL
(Documentation for SFPD 4.0, 4.01-4.03, School Site Approval)

Topic	Code References
Air Quality	
Is the boundary of the proposed school site within 500 feet of the edge of the closest traffic lane of a freeway or busy traffic corridor? If yes, would the project create an air quality health risk due to the placement of the school?	Ed. Code §17213(c)(2)(C); CCR Title 5 §14010(q)
Would the project create an air quality hazard due to the placement of a school within one-quarter mile of: (a) permitted and non-permitted facilities identified by the jurisdictional air quality control board or air pollution control district; (b) freeways and other busy traffic corridors; (c) large agricultural operations; and/or (d) a rail yard, which might reasonably be anticipated to emit hazardous air emissions, or handle hazardous or acutely hazardous material, substances, or waste?	Ed. Code § 17213(b); CCR Title 5 §14010(q)
Geology and Soils	
Does the site contain an active earthquake fault or fault trace, or is the site located within the boundaries of any special studies zone or within an area designated as geologically hazardous in the safety element of the local general plan?	Ed. Code, §17212 and §17212.5; CCR Title 5 §14010(f)
Would the project involve the construction, reconstruction, or relocation of any school building on the trace of a geological fault along which surface rupture can reasonably be expected to occur within the life of the school building?	Ed. Code §17212.5
Would the project involve the construction, reconstruction, or relocation of any school building on a site subject to moderate-to-high liquefaction, landslides, or expansive soils?	CCR, Title 5 §14010(i) School Site Selection and Approval Guide, Appendix H
Are naturally occurring asbestos minerals located at the site?	School Site Selection and Approval Guide, Appendix H
Hazards and Hazardous Materials	
Does the proposed school site contain one or more pipelines, situated underground or aboveground, which carry hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line that is used only to supply natural gas to that school or neighborhood?	Ed. Code §17213(a)(3)
Is the proposed school site located near an aboveground water or fuel storage tank or within 1,500 feet of an easement of an aboveground or underground pipeline that can pose a safety hazard to the site?	CCR, Title 5 § 14010 (h)

2. Environmental Checklist

Is the school site in an area designated in a city, county, or city and county general plan for agricultural use and zoned for agricultural production, and if so, do neighboring agricultural uses have the potential to result in any public health and safety issues that may affect the pupils and employees at the school site? *(Does not apply to school sites approved by CDE prior to January 1, 1997.)*	Ed. Code § 17215.5
Is the property line of the proposed school site less than the following distances from the edge of respective power line easements: (1) 100 feet of a 50–133 kV line; (2) 150 feet of a 220–230 kV line; or (3) 350 feet of a 500–550 kV line?	CCR, Title 5 § 14010 (c)
Does the project site contain a current or former hazardous waste disposal site or solid waste disposal site and, if so, have the wastes been removed?	Ed. Code § 17213(a)(1)
Is the project site a hazardous substance release site identified by the state Department of Health Services in a current list adopted pursuant to §25356 for removal or remedial action pursuant to Chapter 6.8 of Division 20 of the Health and Safety Code?	PRC § 21151.8 (a)(1)(B); Ed. Code § 17213(a)(2)
If prepared, has the risk assessment been performed with a focus on children's health posed by a hazardous materials release or threatened release, or the presence of naturally occurring hazardous materials on the schoolsite?	Ed. Code § 17210.1(a)(3)
If a response action is necessary and proposed as part of this project, has it been developed to be protective of children's health, with an ample margin of safety?	Ed. Code § 17210.1(a)(4)
Is the proposed school site situated within 2,000 feet of a significant disposal of hazardous waste?	CCR, Title 5 § 14010 (t)
Is the site within 300 feet of an active oil or natural gas well?	Fire Code § 3406.3.1
Hydrology and Flooding	
Is the project site subject to flooding or tank/dam inundation or street flooding?	Ed. Code § 17212 and 17212.5; CCR, Title 5 § 14010 (g) School Site Selection and Approval Guide, Appendix H
Land Use and Planning	
Would the proposed school conflict with any existing or proposed land uses, such that a potential health or safety risk to students would be created?	Ed. Code § 17213; Gov't. Code § 65402; CCR, Title 5 § 14010 (m)
Are there easements on or adjacent to the site that would restrict access or building placement?	CCR, Title 5 § 14010(r)
Is the school site proportionate in its length to width ratio to accommodate the building layout, parking and playfields that can be safely supervised and does not exceed the allowed passing time to classes for the district?	CCR, Title 5 § 14010(j)
Is the site located within the proposed attendance area to encourage student walking and avoid extensive bussing unless bussing for ethnic diversity?	CCR, Title 5 § 14010(n)
Has the district considered environmental factors of light, wind, noise, aesthetics, and air pollution in its site selection process?	CCR, Title 5 § 14010(q)
Is the site within a designated Farmland Security Zone?	Government Code § 51296.5
Noise	
Is the proposed school site located adjacent to or near a major arterial roadway or freeway whose noise generation may adversely affect the educational program?	CCR, Title 5 § 14010 (e)
Public Services	
Does the site promote joint use of parks, libraries, museums, and other public services?	CCR, Title 5, § 14010 (o)
Is the site conveniently located for public services, including but not limited to fire protection, police protection, public transit and trash disposal wherever feasible?	CCR, Title 5, § 14010 (p)
Transportation/Traffic	
Are traffic and pedestrian hazards mitigated per Caltrans' School Area Pedestrian Safety manual?	CCR, Title 5 § 14010 (l)
Is the site easily accessible from arterials and is the minimum peripheral visibility maintained for driveways per Caltrans' Highway Design Manual?	CCR, Title 5 § 14010 (k)

2. Environmental Checklist

Is the proposed school site within 1,500 feet of a railroad track easement?	CCR, Title 5 § 14010 (d)
Is the proposed school site within two nautical miles, measured by air line, of that point on an airport runway or potential runway included in an airport master plan that is nearest to the site? *(Does not apply to school sites acquired prior to January 1, 1966.)*	Ed. Code § 17215 (a)&(b)

School building "means and includes any building used, or designed to be used, for elementary or secondary school purposes and constructed, reconstructed, altered, or added to…" (Ed. Code § 17283).
Note: Any documentation related to the California Environmental Quality Act is provided under separate cover.

2. Environmental Checklist

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3. Environmental Analysis

Section 2.1 provided a checklist of the State of California's health and safety standards for school sites. This section provides documentation and evaluation of applicable standards and mitigation measures where appropriate.

3.1 AIR QUALITY

3.1.1 Is the boundary of the proposed school site within 500 feet of the edge of the closest traffic lane of a freeway or busy traffic corridor? If yes, would the project create an air quality health risk due to the placement of the school?

No Significant Hazard. Public Resources Code Section 21151.8(b)(9) and Education Code Section 17213(d)(9) define a "freeway or other busy traffic corridors" as roadways that on an average day have traffic in excess of 50,000 vehicles in a rural area or 100,000 vehicles in an urban area or 100,000 average daily trips (ADT).

Residential, church, and vacant uses surround the project site. Streets within 500 feet of the site are designated as major arterial or local residential streets (Moreno Valley General Plan 2006). The traffic volume on Nason Street was measured in 2017 north of the intersection with Cottonwood Avenue at 19,900 average daily trips (ADT) (Moreno Valley 2017). The traffic volume on Alessandro Boulevard west of the intersection with Nason Street was measured in 2017 at 10,000 ADT. No freeways or busy traffic corridors are located within 500 feet of the site.

3.1.2 Would the project create an air quality hazard due to the placement of a school within one-quarter mile of: (a) permitted and non-permitted facilities identified by the jurisdictional air quality control board or air pollution control district; (b) freeways and other busy traffic corridors; (c) large agricultural operations; and/or (d) a rail yard, which might reasonably be anticipated to emit hazardous air emissions, or handle hazardous or acutely hazardous material, substances, or waste?

No Significant Hazard. The South Coast Air Quality Management District (AQMD) has developed the FIND database for identifying stationary and mobile sources within a quarter-mile radius of project sites that have the potential to generate hazardous air emissions. According to a review of FIND, there are no permitted facilities or mobile sources within one-quarter mile of the site. No freeways or busy traffic corridors, large agricultural operations or rail yards are located within a quarter mile of the site.

3.2 GEOLOGY AND SOILS

Based on a review of the United States Geological Survey (USGS) 7.5-minute Topographic Series, Sunnymead, California Quadrangle Map (USGS 2018), the property is located in the central portion of

3. Environmental Analysis

Moreno Valley within the Perris Structural Block, part of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Province extends approximately 900 miles from the Los Angeles-Pomona-San Bernardino Basins to Baja California, Mexico and is characterized by elongated northwest-trending mountain ranges separated by sediment-floored valleys (Yerkes et al. 1965). The most dominant structural features of the province are the northwest-trending fault zones, most of which die out, merge with, or are terminated by the steep reverse faults at the southern margin of the San Gabriel-San Bernardino Mountains within the Transverse Ranges Geomorphic Province far to the north of the Site. The Perris Structural Block lies between the Elsinore and San Jacinto faults. The site sits early Pleistocene sandy alluvial fan deposits (Morton and Matti 2001). Shallow soil on the site was described as mostly silt during the Preliminary Environmental Assessment (PEA) investigation (PlaceWorks 2019).

The geographic coordinates for the subject site are 33.9219 north latitude and 117.1904 west longitude. The subject site lies at an approximate elevation of 1,620 feet above sea level. The topography in the vicinity of the Site has a general gradient toward the south.

3.2.1 Does the site contain an active earthquake fault or fault trace, or is the site located within the boundaries of any special studies zone or within an area designated as geologically hazardous in the safety element of the local general plan?

No Significant Hazard. Based on a review of Morton and Matti (2001), the California Geological Survey (CGS) Information Warehouse (2019) and the City of Moreno Valley General Plan Safety Element (2006), the project site is not on a known fault and is not within an earthquake fault zone.

3.2.2 Would the project involve the construction, reconstruction, or relocation of any school building on the trace of a geological fault along which surface rupture can reasonably be expected to occur within the life of the school building?

No Significant Hazard. The site is not within or immediately adjacent (i.e., within a few hundred feet) of a fault zone (Morton and Matti 2001; CGS 2019; City of Moreno Valley 2006). The nearest potentially active fault is the San Jacinto Fault located approximately 2.9 miles northeast of the site. Based on a review of the readily-available geologic literature, the site is not on a pressure ridge, and there are no known active faults on or immediately adjacent to the site. On this basis, the potential for tectonic fault rupture at the site is considered negligible.

3.2.3 Would the project involve the construction, reconstruction, or relocation of any school building on a site subject to moderate-to-high liquefaction, landslides, or expansive soils?

No Significant Hazard.

Liquefaction

Based on a review of the Map My County database (Riverside County 2019), the site has low liquefaction potential. However, since the site is a proposed school site, CGS and Division of the State Architect (DSA) will ensure that the buildings are sufficiently evaluated for liquefaction potential, and if necessary, would be mitigated in accordance with the most current California Building Code. Therefore, project implementation would not result in a significant impact from liquefaction.

Landslides

The project site and vicinity are relatively flat and have a slope of less than 2% (USGS 2018). Therefore, landslides are not a potential hazard at the project site.

Expansive Soils

Expansive soils swell when they become wet and shrink when they dry out, resulting in the potential for cracked building foundations and in some cases, structural distress of the buildings themselves. In each case, minor to severe damage to overlying structures is possible. Based on the silty soil observed at the site during the PEA, expansive soils are not expected to be a significant hazard at the site. Additionally, since the site is a proposed school site, CGS and DSA will ensure that the buildings are sufficiently mitigated for the condition. Therefore, the project will not expose people or the new school buildings to adverse effects associated with expansive soils.

3.2.4 Are naturally occurring asbestos minerals located at the site?

No Significant Hazard. No known naturally occurring serpentine rock or rock formations—which may contain significant quantities of asbestos—are within 10 miles of the project site (Van Gosen and Clinkenbeard 2011). Additionally, based on a review of *A General Location Guide for Ultramafic Rocks in California: Areas More Likely to Contain Naturally Occurring Asbestos* (CGS 2000) and Van Gosen and Clinkenbeard (2011), the site is not located within a 10-mile radius of an area thought to contain naturally occurring asbestos. Therefore, project implementation would not result in the exposure of hazardous materials or naturally occurring hazardous materials on the school site.

3.3 HAZARDS AND HAZARDOUS MATERIALS

3.3.1 Does the proposed school site contain one or more pipelines, situated underground or aboveground, which carry hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line that is used only to supply natural gas to that school or neighborhood? Does the proposed school site contain pressurized sewer lines and high pressure water pipelines within 1,500 feet of the proposed site?

No Significant Hazard. There are no petroleum or chemical pipelines on the site based on a review of the National Pipeline Mapping System online mapping database (NPMS 2019). According to the response from Southern California Gas Company, one high-pressure natural gas pipeline is located to the north within 1,500 feet of the project site, underneath Cottonwood Avenue, about 650 feet north of the site. A Pipeline Safety Hazard Assessment was conducted for a proposed school site known as "Proposed School Site At Clemson Court and Bay Avenue" directly adjacent to this same pipeline, which concluded that the pipeline did not pose a significant risk to that proposed school site (The Planning Center 2008). Since the project site is located farther from the same pipeline than the Clemson Court and Bay Avenue Proposed Site and the methodology for calculating the pipeline hazard risk has not changed, there is no significant hazard to the project site from the high-pressure natural gas pipeline.

3. Environmental Analysis

3.3.2 Is the proposed school site located near an aboveground water or fuel storage tank or within 1,500 feet of an easement of an aboveground or underground pipeline that can pose a safety hazard to the site?

Aboveground Water or Fuel Storage Tanks

No Significant Hazard. No aboveground water or fuel storage tanks were identified within a 1,500-foot radius, based on a review of Google Earth Pro and the GeoTracker website (2019). The development of the project will not create a new hazard.

Hazardous Substance Pipelines

No Significant Hazard. There are no petroleum or chemical pipelines within a 1,500-foot radius, according to the National Pipeline Mapping System (online mapping database (NPMS 2019). According to the response from Southern California Gas Company, one high-pressure natural gas pipeline is located to the north within 1,500 feet of the project site, underneath Cottonwood Avenue, about 650 feet north of the site (Appendix A). A Pipeline Safety Hazard Assessment was conducted for a proposed school site known as "Proposed School Site At Clemson Court and Bay Avenue" directly adjacent to this same pipeline, which concluded that the pipeline did not pose a significant risk to that proposed school site (The Planning Center 2008). Since the project site is located farther from the same pipeline than the Clemson Court and Bay Avenue Proposed Site, there is no significant hazard to the project site from the high-pressure natural gas pipeline. A copy of the Pipeline Safety Hazard Assessment is included in Appendix B.

Sewer and Water Pipelines

No Significant Hazard. Based on maps provided from Eastern Municipal Water District (EMWD), there is one 12-inch diameter water main underneath Nason Street, west of the project site. A Water Pipeline Flooding Analysis was conducted to address this pipeline, which found that a rupture would result in flooding that is confined to the street and would not impact the proposed school site. Copies of the water plans obtained from EMWD are included in Appendix A. A copy of the Water Pipeline Flooding Analysis calculations is included in Appendix C.

3.3.3 Is the school site in an area designated in a city, county, or city and county general plan for agricultural use and zoned for agricultural production, and if so, do neighboring agricultural uses have the potential to result in any public health and safety issues that may affect the pupils and employees at the school site? (Does not apply to school sites approved by CDE prior to January 1, 1997.)

No Significant Hazard. As shown in the aerial photograph in Figure 2, the project site is in an area characterized by vacant land, suburban residential and church development. Properties within a quarter-mile radius of the site are generally zoned for residential and commercial. No agricultural activities have occurred on adjoining areas since at least 2002.

3.3.4 Is the property line of the proposed school site less than the following distances from the edge of respective power line easements: (1) 100 feet of a 50–133 kV line; (2) 150 feet of a 220–230 kV line; or (3) 350 feet of a 500–550 kV line?

No Significant Hazard. According to the Moreno Valley Electrical Utility Division, the property line of the project site is not within 100 feet of a 50-133 kilovolt (kV) line, 150 feet of a 220-230 kV line, or 350 feet of a 500-550 kV line. A copy of the responses from Moreno Valley Electrical Utility Division is included in Appendix A.

3.3.5 Does the project site contain a current or former hazardous waste disposal site or solid waste disposal site and, if so, have the wastes been removed?

No Significant Hazard. Based on a review of the EnviroStor and GeoTracker the project site does not contain a current or former hazardous waste disposal site or solid waste disposal site (DTSC 2019; SWRCB 2019).

3.3.6 Is the project site a hazardous substance release site identified by the state Department of Health Services in a current list adopted pursuant to §25356 for removal or remedial action pursuant to Chapter 6.8 of Division 20 of the Health and Safety Code?

No Significant Hazard. Based on a review of the EnviroStor and GeoTracker databases, no hazardous substance release sites were identified within the project site (DTSC 2019; SWRCB 2019).

3.3.7 If prepared, has the risk assessment been performed with a focus on children's health posed by a hazardous materials release or threatened release, or the presence of naturally occurring hazardous materials on the schoolsite?

No Significant Hazard. A Preliminary Environmental Assessment (PEA) was conducted for the site. Based on a review of historical information; the subject site had been used historically for agricultural purposes. The results of the PEA support the recommendation to the Department of Toxic Substances Control (DTSC) for a No Further Action determination. The PEA is currently under review by DTSC.

Searches on databases concluded that the project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

3.3.8 If a response action is necessary and proposed as part of this project, has it been developed to be protective of children's health, with an ample margin of safety?

No Significant Hazard. Based on the findings of the PEA, some housekeeping activities are recommended, but no large-scale removal action is necessary.

3.3.9 Is the proposed school site situated within 2,000 feet of a significant disposal of hazardous waste?

No Significant Hazard. Based on review of the GeoTracker website, the project site is not within 2,000 feet of a significant disposal of hazardous waste (DTSC 2019; SWRCB 2019).

3.3.10 Is the site within 300 feet of an active oil or natural gas well?

No Significant Hazard. According to the Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) Well Finder, the project site is not within 300 feet of an active oil or natural gas well (DOGGR 2019). The closest oil well is located approximately 3.04-miles to the northeast of the site. The well is identified as a plugged and abandoned well that was drilled in May 1955 by Perris Oil Co.

3.4 HYDROLOGY AND FLOODING

Based on an analysis of the topography in the site vicinity, sheet flow runoff from the site during periods of intense or prolonged precipitation would be expected to flow to the south.

The site is located in the Perris North Subunit of the San Jacinto Valley Groundwater Basin. Groundwater in the vicinity of the site is located at about over 120 feet below the ground surface and generally flows toward the south (Wildermuth 2000). Hydrogeologic investigations were not performed on the site for this investigation; therefore, it is unknown to what extent localized variations in groundwater presence and flow occur on the site.

3.4.1 Is the project site subject to flooding or tank/dam inundation or street flooding?

No Significant Hazard. According to the FEMA Map Service Center website (2019) and maps from the Office of Emergency Services (2015), the site does not lie within a 100-year flood zone or within a dam inundation zone. As stated in Section 3.3.1, there are no water tanks within 1,500 feet of the site.

3.5 LAND USE AND PLANNING

3.5.1 Would the proposed school conflict with any existing or proposed land uses, such that a potential health or safety risk to students would be created?

No Significant Hazard. As shown in the aerial photograph in Figure 2, the project site is in an area characterized by suburban residential development. Properties within a quarter-mile radius of the site are generally zoned for residential and commercial. Therefore, there is no significant hazard to the project.

3.5.2 Are there easements on or adjacent to the site that would restrict access or building placement?

No Significant Hazard. Based on a review of the Moreno Valley Map Viewer, no easements that would restrict access or building placement are located on or adjacent to the site. Therefore, there is no significant hazard to the project.

3.5.3 Is the school site proportionate in its length to width ratio to accommodate the building layout, parking and playfields that can be safely supervised and does not exceed the allowed passing time to classes for the district?

No Significant Hazard. The school will be developed with footprint proportionality and ease of student access in mind. Therefore, there is no significant hazard to the project.

3.5.4 Has the district considered environmental factors of light, wind, noise, aesthetics, and air pollution in its site selection process?

Light and Wind

No Significant Hazard. The project site would be exposed to standard climate conditions experienced by the City of Moreno Valley in Riverside County, California, which is generally characterized by Mediterranean conditions. Based on a review of a wind rose for Moreno Valley, the predominant wind direction is from the southwest, and wind speeds rarely exceed 24 miles per hour (Meteoblue 2019). As applicable, the operation of the proposed project would consider these environmental conditions. Therefore, project implementation would not expose site occupants to adverse light or wind conditions.

Aesthetics

No Significant Hazard. Project development would not degrade the existing visual character of the site. The project site is in an area with residential, church, and vacant land uses. The building of the proposed project would be consistent with the surrounding land uses. The character and quality of the site would not be incompatible with the nearby structures.

Air Pollution

No Significant Hazard. The South Coast Air Quality Management District (AQMD) has developed the FIND database for identifying stationary and mobile sources within a quarter-mile radius of project sites that have the potential to generate hazardous air emissions. According to a review of FIND, there are no permitted facilities or mobile sources within one-quarter mile of the site. No freeways or busy traffic corridors, large agricultural operations or rail yards are located within a quarter mile of the site, and no mitigation measures are required.

3.6 NOISE

3.6.1 Is the proposed school site located adjacent to or near a major arterial roadway or freeway whose noise generation may adversely affect the educational program?

No Significant Hazard. The project site is located adjacent to Nason Street. Residential dwellings bound the site to the south and a church bounds the site to the north. The proposed project building design would mitigate the noise from Nason Street to a less than significant level. No significant hazard from noise is expected for the project.

3.7 PUBLIC SERVICES

3.7.1 Does the site promote joint use of parks, libraries, museums, and other public services?

No Significant Hazard. The site could be made available for public use as the scheduling of scholastic purposes allows, following District policies, and the Civic Center Act. No impacts to nearby public facilities

and services would occur as a result of the proposed project. No significant impacts would occur as a result of the proposed project.

3.7.2 Is the site conveniently located for public services, including but not limited to fire protection, police protection, public transit and trash disposal wherever feasible?

No Significant Hazard. The project site is located in a developed area. The project site will have regularly scheduled trash collection and access to public transit. There is no significant hazard. Fire Station No. 99 is about a half mile to the northwest of the site. The Moreno Valley Police Department is located about four miles to the west of the site. The Nason Street and Cottonwood Avenue Bus Stop is located about 0.15 miles north of the site.

3.8 TRANSPORTATION/TRAFFIC

3.8.1 Are traffic and pedestrian hazards mitigated per Caltrans' School Area Pedestrian Safety manual?

No Significant Hazard. Based on existing conditions, the future project is not expected to have any significant traffic hazards to overcome. Furthermore, the School Area Pedestrian Safety Manual will be used as a guide, and decisions related to particular traffic control devices at particular locations shall be made on the basis of an engineering and traffic survey. The school district governing board may request the appropriate city, county, or state agency to consider the installation of traffic control devices if the engineering and traffic survey determines the request to be justified. Traffic control devices include (Caltrans, 1996):

1. Warning signs and markings.
2. Variable speed limits.
3. Intersection stop signs.
4. Flashing yellow beacons.
5. Traffic signals.
6. Remove visibility obstructions.
7. School Safety Patrol.
8. Adult Crossing Guard.
9. Pedestrian separation structures.
10. Pedestrian walkways along the roadway.
11. Pedestrian walkways separated from the roadway.
12. Parking controls and curb-use zones.

3.8.2 Based on the traffic volumes mentioned in Section 3.1.1 and the existing sidewalks and crosswalks in the site vicinity, the project would not have any significantly adverse traffic or pedestrian hazards to overcome.Is the site easily accessible from arterials and is the minimum peripheral visibility maintained for driveways per Caltrans' Highway Design Manual?

No Significant Hazard. Based on existing conditions, the future project is not expected to have any significant traffic hazards to overcome. The site is located in an established portion of the City of Moreno Valley that has wide, straight relatively flat streets for open viewing of oncoming traffic. Driveways would be designed to meet the requirements of the Caltrans Highway Design Manual. Future transportation facilities are subject to review and approval by the City of Moreno Valley.

3.8.3 Is the proposed school site within 1,500 feet of a railroad track easement?

No Significant Hazard. Based on a review of Google Earth and a site visit, the site is not located within 1,500 feet of a railroad track easement.

3.8.4 Is the proposed school site within two nautical miles, measured by air line, of that point on an airport runway or potential runway included in an airport master plan that is nearest to the site? (Does not apply to school sites acquired prior to January 1, 1966.)

No Significant Hazard. Based on a review of area maps and recent aerial photographs, the site is not within two nautical miles of an existing airport or proposed airport runway. The nearest airport is March Air Reserve Base located approximately 3.8-nautical miles to the southwest.

3.9 EXEMPTIONS TO SITING STANDARDS

3.9.1 Is the district seeking any exemptions to the standards found in CCR, Title 5, § 14010(c-i), (l), (m), (q), (c), (t)?

No Significant Hazard. The District will not be seeking any exemptions to the standards found in CCR Title 5 Section 14010.

3.9.2 If so, has mitigation been identified that demonstrates that the standard may be overridden without compromising a safe and supportive school environment?

No Significant Hazard. The proposed project would comply with all CCR Title 5 standards.

3. Environmental Analysis

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4. References

4.1 PRINTED REFERENCES

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5. List of Preparers

5.1 LEAD AGENCY

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5.2 PLACEWORKS

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Danielle Clendening, Intern

5. List of Preparers

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Appendix A Agency Information

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13636 NASON ST, Moreno Valley, Riverside

EMW01
EMERGENCY
CAMERON VALENZUELA
951-928-6107
VALENZUC@EMWD.ORG
VACUUM
CAMERON VALENZUELA
2270 TRUMBLE RD, PERRIS, CA 92572
951-928-6107
VALENZUC@EMWD.ORG
DESIGN
CAMERON VALENZUELA
PO BOX 8300, PERRIS, CA 925728300
951-928-6107
VALENZUC@EMWD.ORG

MVELECT
EMERGENCY
MARK TEPNER
951-830-2711
VACUUM
MARK TEPNER
P O BOX 88005, MORENO VALLEY, CA 92552
951-830-2711
TEPNER@ENCOUS.COM
DESIGN
AL KEPUSKA
P O BOX 88005, MORENO VALLEY, CA 925520805
951-413-3517

SCG1OM
EMERGENCY
MARGARITO DOMINGUEZ
800-423-1391
VACUUM
NO PERMISSION REQUIRED
DESIGN
GEARY AMBERS
1981 W LUGONIA AVE, REDLANDS, CA 92374
909-335-7955
SCGSEREGIONREDLANDSUTILITYREQUEST@SEMPRAUTILITIES.COM

SCG29T
EMERGENCY
CINDY PINON-PACHECO
951-845-0705

VACUUM
NO PERMISSION REQUIRED
DESIGN
SOCALGAS TRANSMISSION
9400 OAKDALE AVE., CHATSWORTH, CA 91311
818-701-4546
SOCALGASTRANSMISSIONUTILITYREQUEST@SEMPRAUTILITIES.COM

UQSTSO
EMERGENCY
Information Not Available
VACUUM
Information Not Available
DESIGN
Information Not Available

USCE77
EMERGENCY
SC EDISON PERSONNEL
800-611-1911
VACUUM
GILBERT ACEVES
14005 S. BENSON AVE, CHINO, CA 91710
909-548-7249
GILBERT.ACEVES@SCE.COM
DESIGN
ENGINEERING
909-503-5565

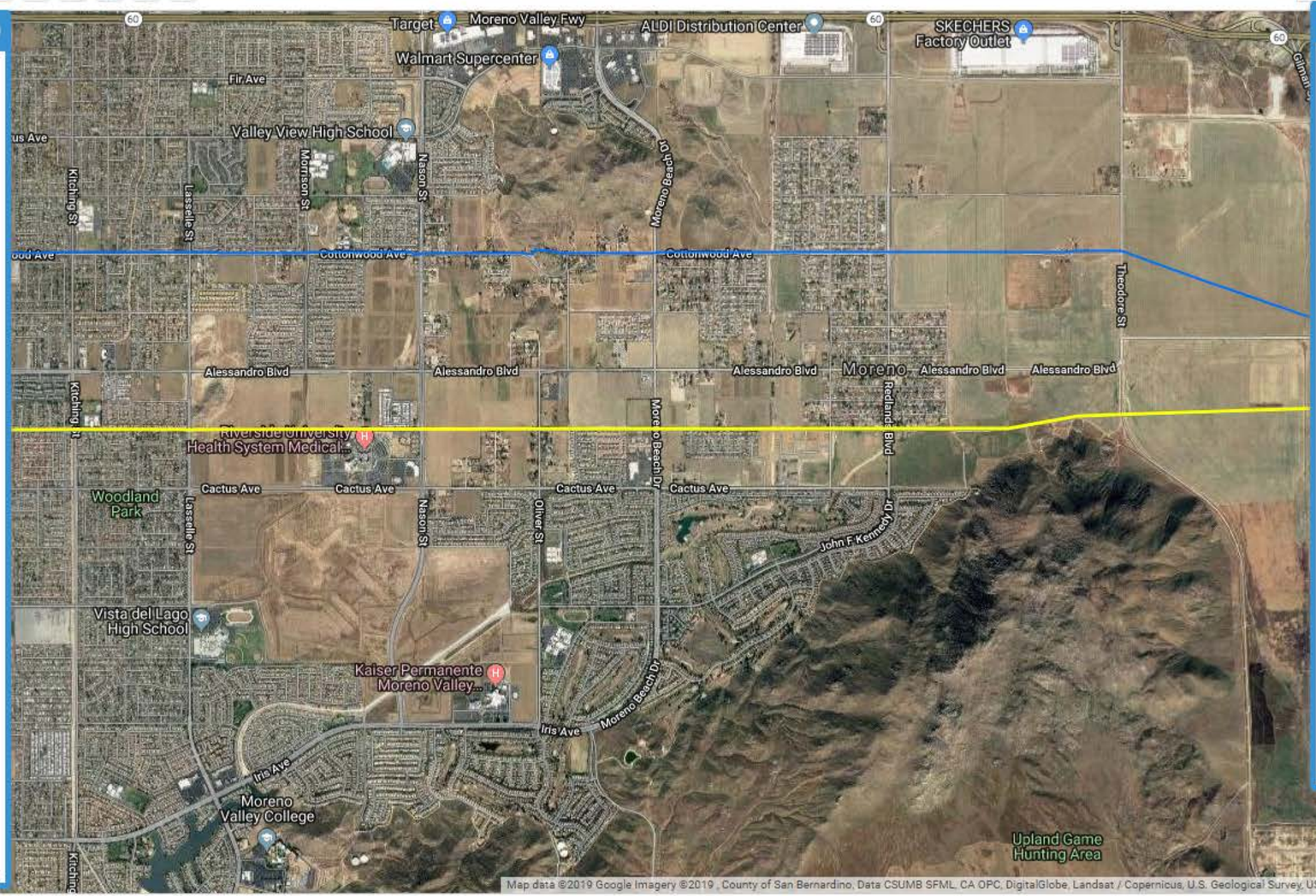
UTWCNRIV
EMERGENCY
SERGIO GONZALEZ
7337 CENTRAL AVE, RIVERSIDE AVE, CA 92504
951-406-1645
SERGIO.GONZALEZ@CHARTER.COM
VACUUM
Information Not Available
DESIGN
COZETTE MILES
1500 AUTO CENTER DR, ONTARIO, CA 91761
909-975-3398
COZETTE.MILES@CHARTER.COM

UVZMENIF
EMERGENCY
REPAIR CALL CENTER
800-921-8101
VACUUM
NONE PROVIDED
800-837-4966
DESIGN
BILL KEARNS
000-000-0000
WILLIAM.KEARNS@FTR.COM

Identify - Total 1 record(s) found

18484

Attribute	Value
Category: PIPELINE ATTRIBUTES	
OPERATOR ID	18484
OPERATOR NAME	SOUTHERN CALIFORNIA GAS CO
SYSTEM NAME	TRANSMISSION
SUBSYSTEM NAME	
PIPELINE ID	117
MILES	44.14
COMMODITY CATEGORY	Natural Gas
COMMODITY DESCRIPTION	NATURAL GAS
INTERSTATE DESIGNATION	N
PIPELINE STATUS CODE	Active (filled)
REVISION DATE	03/15/2017
FRP SEQUENCE NUMBER	
Category: GENERAL CONTACT	
FIRST NAME	Kris
LAST NAME	McCarthy
TITLE	Pipeline Integrity Manager
ENTITY	
PHONE	(213) 244-5036
EMAIL	NPMS_Inquiries@semprautilities.com
ADDRESS	555 West 5th Street GT11A5
CITY	Los Angeles
STATE	CA
ZIP	90013



Map Layers

- Accidents (Liquid)
- Incidents (Gas)
- Gas Transmission Pipelines
- Hazardous Liquid Pipelines
- LNG Plants
- Breakout Tanks
- Other Populated Areas (scale dependent)
- Highly Populated Areas (scale dependent)
- State Boundaries
  - Show Labels
- County Boundaries
  - Show Labels
- Map
- Satellite

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Identify - Total 1 record(s) found

18484

Attribute	Value
Category: PIPELINE ATTRIBUTES	
OPERATOR ID	18484
OPERATOR NAME	SOUTHERN CALIFORNIA GAS CO
SYSTEM NAME	TRANSMISSION
SUBSYSTEM NAME	
PIPELINE ID	12320
MILES	36.22
COMMODITY CATEGORY	Natural Gas
COMMODITY DESCRIPTION	NATURAL GAS
INTERSTATE DESIGNATION	N
PIPELINE STATUS CODE	Active (filled)
REVISION DATE	03/15/2017
FRP SEQUENCE NUMBER	
Category: GENERAL CONTACT	
FIRST NAME	Kris
LAST NAME	McCarthy
TITLE	Pipeline Integrity Manager
ENTITY	
PHONE	(213) 244-5036
EMAIL	NPMS_Inquiries@semprautilities.com
ADDRESS	555 West 5th Street GT11A5
CITY	Los Angeles
STATE	CA
ZIP	90013



Map Layers

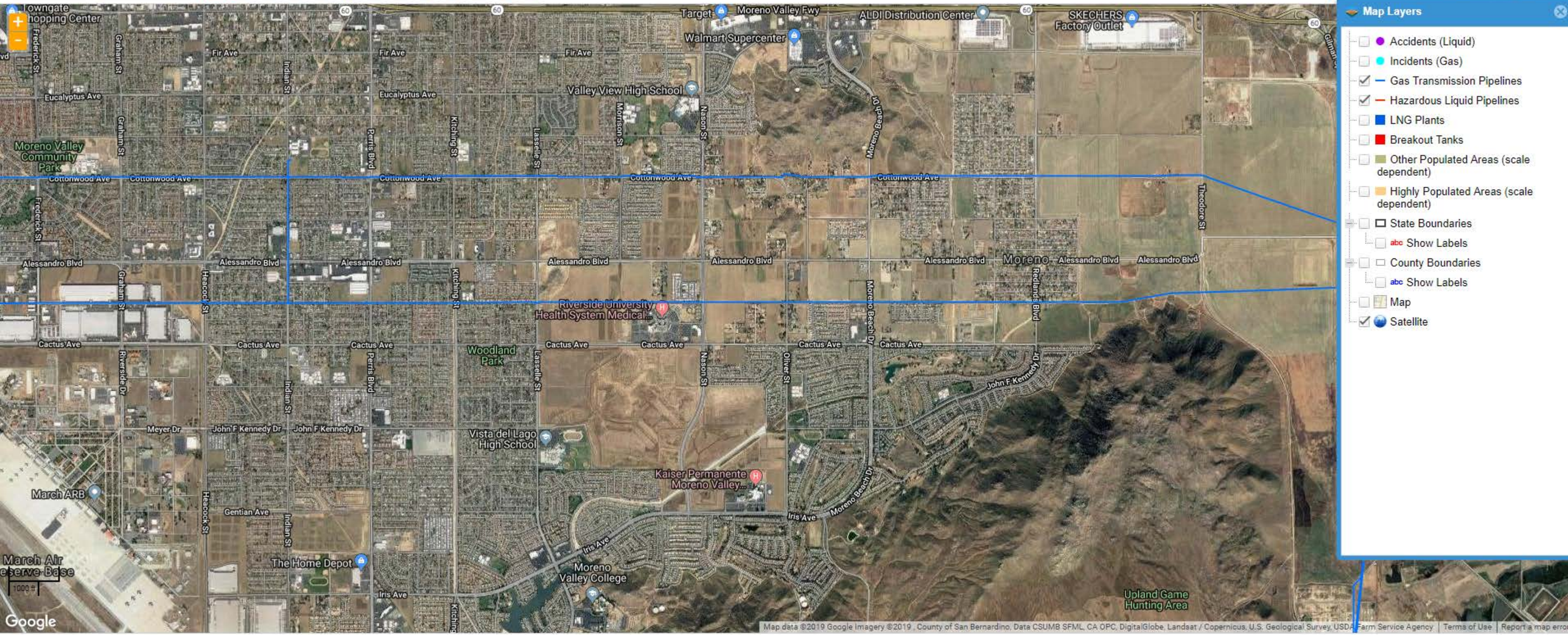
- [ ] Accidents (Liquid)
- [ ] Incidents (Gas)
- [x] Gas Transmission Pipelines
- [x] Hazardous Liquid Pipelines
- [ ] LNG Plants
- [ ] Breakout Tanks
- [ ] Other Populated Areas (scale dependent)
- [ ] Highly Populated Areas (scale dependent)
- [ ] State Boundaries
  - [ ] Show Labels
- [ ] County Boundaries
  - [ ] Show Labels
- [ ] Map
- [x] Satellite

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Public Viewer

Log Out | Change County

Map Layers | Query Tools | Enter search term (min 4 chars) | Help



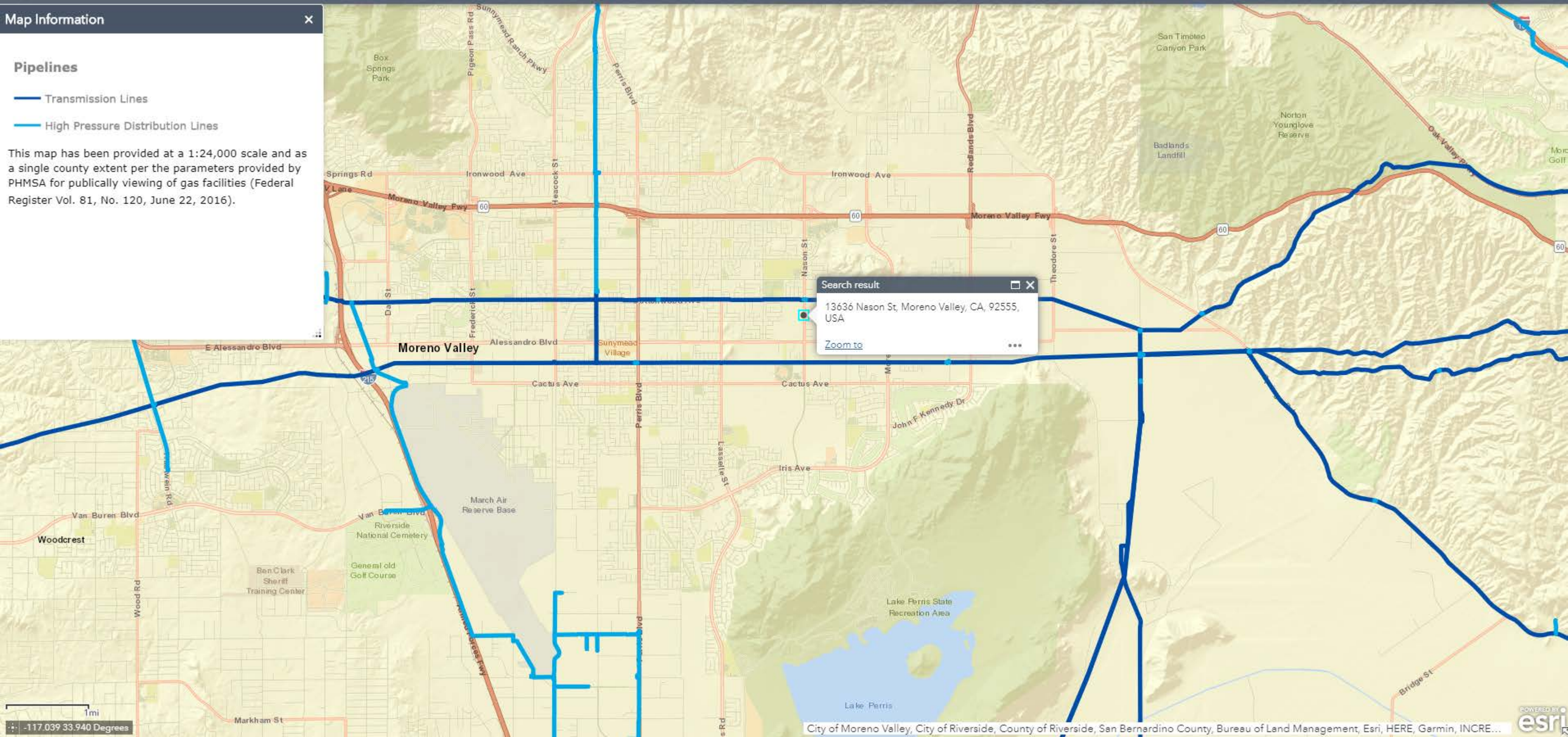
Map Layers

- [ ] Accidents (Liquid)
- [ ] Incidents (Gas)
- [x] Gas Transmission Pipelines
- [x] Hazardous Liquid Pipelines
- [ ] LNG Plants
- [ ] Breakout Tanks
- [ ] Other Populated Areas (scale dependent)
- [ ] Highly Populated Areas (scale dependent)
- [ ] State Boundaries
  - [ ] abc Show Labels
- [ ] County Boundaries
  - [ ] abc Show Labels
- [ ] Map
- [x] Satellite

Ready | Zoom Level: 14 of 19 (1:24,000) Closest Zoom for Pipelines | 33.932303, -117.126880 | COUNTY : Riverside, CA

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Gas Transmission Pipeline Interactive Map - Riverside



Bench Mark Data: Gate valve nut 30'E. of Nason on Bay Elev. 1616.96
Power Pole #21179 CWT N.W.Cor. Cottonwood & Nason N&E Elev. 1644.54

SCHEDULE II ~ 12" PIPELINE ~ CLASS 100 MIN.

ELEVATIONS

STATIONS

Natural ground

Center Grade 12" pipeline

S=+0.01816

S=+0.01930

S=+0.00000

S=0.01000

S=-0.01416

S=-0.00000

BEGIN CONST. SECTION

13+30 12" FLG & BLD. FLG.

13+34 Ah (BY OUTLET E with 12" GATE VALVE (BY OTHERS)

19+65± Water & G.V. to be reconnected to new 12" pipeline by others

21+04 1" Water Meter & G.V. to be reconnected to new 12" line.

21+33 & 10.5' Conc. Driveway

E.M.W.D. 12" PIPELINE 19' W.E

NASON ST

20+94 Begin wooden fence 32' W.E

20+80 & 18' Driveway

19+91 & 15' Driveway

19+73 End Orange tree row 43' W.E

13+46 Begin Orange tree row 47' W.E

13+67 P.P. 47' W.E

15+75 P.P. 47' W.E

17+99 P.P. 47' W.E

20+21 P.P. 43' W.E

22+43 P.P. 43' W.E

24+66 P.P. 43' W.E

26+79 P.P. 32' W.E

24+08 36" Palm Tree 30' W.E

23+94 & 22' Driveway

23+80 36" Palm Tree 30' W.E

23+58 4' Log Sign 22' W.E

23+36 10" Tree 24' W.E

23+20 10" Tree 26' W.E

22+43 to 23+11 Lath fence 31' W.E

23+11 End shrubs 31' W.E

26+27 S/edge of Cottonw'd pavement

26+19 Stop Sign 27' W.E

25+88 Begin dirt bank. 8' wide, 20' W.E

COTTONWOOD AVENUE

80'

40' 40'

26+55 N/edge of Cottonwood pavement

E. M.W.D. 24" Cottonwood Ave. East Pipeline 10' S. ~ See D-331

26+65 High Pressure Gas Sign 20' W.E

26+83 & 4'x6' Gas box 22' W.E

27+20 36" Tree 18' W.E

27+60 End oiled berm 15' W. & 17' E.

NASON ST

60'

30' 30'

BAY AVENUE

80'

40' 40'

EQ: 13+19.91 Bk = 13+20.00 Ah Nason St = 0+00 Bay Avenue

NASON ST

60'

30' 30'

Pavement 16.5'W & 16.5'E & (includes 5' oiled berms)

E.M.W.D. 8" Pipeline 14' N. & Bay ~ See D-

BEGIN WORK

FULL WELD (DOUBLE PASS) All Joints 85°

FULL WELD (DOUBLE PASS) All Joints 55°

FULL WELD (DOUBLE PASS) All Joints 85°

DANGER

26+49± 30" GAS MAIN XING (Invert Elev 1435.82 Hand Excavate)

EQ 26+39.83 Bk = 26+40.00 Ah Nason Street = EQ 52+81.25 Cottonwood (D-331)

C.O. 46730

S.O. 91106

24+66 Power Line Xing

24+14± Tele. Line Xing

22+67± Contractor to Install 3/4" Meter Service with backflow device Per B-957

20+80 Power Line Xing

22+67± E.M.W.D. to Hot Tap 12" waterline

NOTE: Detail "C" except no 2" Meter Service

19+65± Water meter & G.V. to be reconnected to new 12" pipeline by others.

19+80± 1" Meter to be reconnected to new 12" pipeline by others.

F.H.Co. 46730 S.O. 91104

20+02 Contractor to Install Size 8" Double Detector Check Per B-957

8" Double Detector Check Per B-957

NOTE: All service connections to be reconnected by District forces. All references from ℄ of street.

26+22± 4" Water Meter & G.V. to be reconnected to new pipeline 12"

26+27.5± & 12" GATE VALVE EQ. 26+30.00 Nason = 52+62.25 Cottonwood

12" OUTLET S.

℄ Nason St.

NOTE: 26+19 to 26+39 Valves & connections to be made by District forces.

26+19 to 26+39 BY OTHERS

10' S.E.

12" FLG.

12" FLANGE

26+32.5± & 12" GATE VALVE EQ. 26+30.00 Nason = 52+69.25 Cottonwood

12" OUTLET N.

DETAIL "B"

24+80± 3/4" Water meter to be reconnected to 12" pipeline (By others)

28+00 ± E.M.W.D. 12" pipeline 12' W.E ~ See D-696

C.O. 554

DETAIL "C"

12" CMLAC

SIDEWALK BACK

2" SERVICE

8" R.S.V.

8" CMLAC

8"x8"x6" TEE

18"

6"

F.H. Per B-516

FABRICATED PER B-957

DCDA Per B-957

MATERIAL LIST FOR NASON STREET ONLY

INSTALL BY

Mk#	Contr	Others	Total	Description
1.	-	2	2	12" Saddle cont'd for 24" pipe
2.	1	-	1	8" " " " 12" "
3.	-	2	2	4" " " " 12" "
4.	-	3	3	1¼" " " " 12" "
5.	-	2	2	12" Flgd. Nipple cont'd for 24" pipe
6.	1	-	1	8" " " " 12" "
7.	-	2	2	4" " " " 12" "
8.	-	2	2	12" Gate valves
9.	-	2	2	4" " "
10.	-	2	2	1" Corp stop
11.	-	1	1	¾" " "
12.	2	1	3	12" Flanges
13.	-	2	2	8" "
14.	-	2	2	4" "
15.	1	-	1	12" Blind flange
16.	1	4	5	12" Gaskets
17.	-	3	3	8" "
18.	-	4	4	4" "
19.	1445'	25'	1470'	of 12" pipe
20.	-	47'	47'	of 8" pipe
21.	-	40'	40'	1" Copper tubing
22.	-	20'	20'	¾" copper tubing

DETAIL "A"

13+30 12" FLG & BLD. FLG.

EQ: 13+34 Ah Nason = 0+19 W Bay

8" OUTLET E

12"

EQ: 13+34 Ah Nason = 0+17 W Bay

8" GATE VALVE

8" FLG.

8"

8" FLG.

EQ: 13+34 Ah Nason = 0+30 E Bay

Remove existing 8" GATE VALVE and move to 0+17W

BY OTHERS

0 100 200

SCALE IN FEET

NO.	DATE	INIT.	REVISIONS CONT.	APP'VD
4	11-1593	KER	REMOVED TELEMETRY NOTE	
5	9/9/09	PW	AS CONST CO 46730 B09/104 (GE 7/6/11 PJ)	

NO.	DATE	INITIAL	DESCRIPTION	APPVD
1	9/25/91	CRD	Install F.H. ... & Double Det. Check also 2" Service.	
2	4/24/91	CRD	Moved 2" Service to STA 22+67, Revised F.H. Tee on both lateral lines and Detail "C"	
3	8/9/93	KER	ADDED TELEMETRY NOTE	

REFERENCES

T-I.D. 3.1 pp. 7-9

T-10.3.1 pp. 44 & 45

L-I.D. 3 pp. 34-42

SCALE	VERT. 1" = 4' HORIZ. 1" = 100'
DESIGNED	
DRAWN	McM 3-14-63
TRACED	
CHECKED	3/26/63
RECOMMENDED	

EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

IMPROVEMENT DISTRICT NO. 3

NASON STREET ~ Sta. 13+30 to 28+00

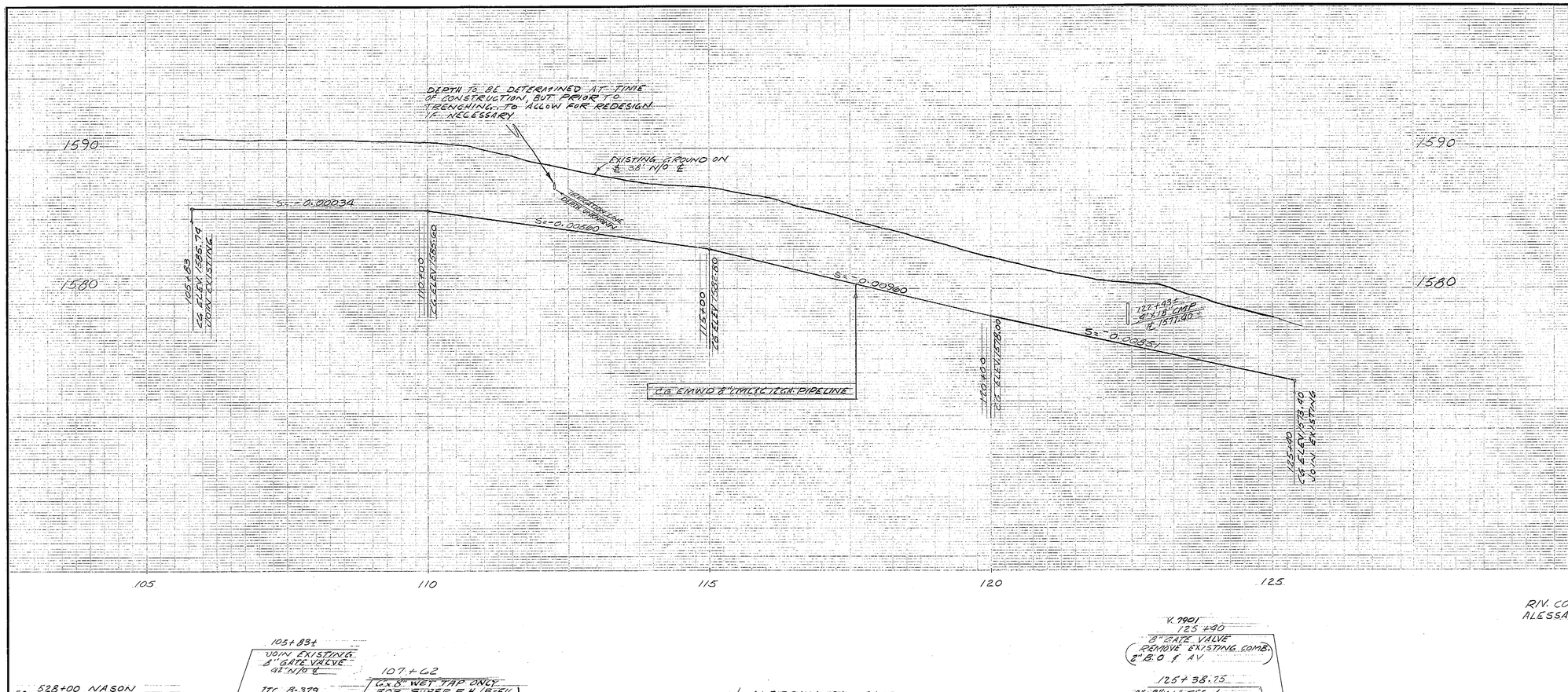
PLAN & PROFILE ~ BAY to COTTONWOOD

APPROVED — GENERAL MANAGER & CHIEF ENGINEER

D-695

COORD. 7-1

SCHEDULE II



NOTES

1. WATER SYSTEM PLANT PROFILES ARE TO CENTERLINE (CENTER GRADE) OF PIPE.
2. PRIOR TO CONSTRUCTION OF PIPELINE CONTRACTOR SHALL EXPOSE EXISTING WATER SYSTEM AND VERIFY IT'S EXISTING ELEVATION AND LOCATION.
3. WATER LINE INSTALLATION SHALL BE IN ACCORDANCE WITH STD. DWG'S. A-89, A-112, A-297, A-922, A-492, B-255, B-279, B-281, B-286, B-288 & B-304.
4. ALL STEEL CYLINDER PIPE SHALL BE BONDED AT RUBBER GASKET JOINTS IN ACCORDANCE WITH STD. DWG. A-819.
5. CONSTRUCTION CREW TO PLACE CHLORINE TABLETS IN EACH JOINT OF PIPE DURING CONSTRUCTION AND NOTIFY BOB ROWLAND WHEN READY TO FILL LINE WITH WATER.

⚠ G NO GEN. TEL. FACILITIES EXIST. OR PROPOSED AT THIS TIME.

T NO S.C.E. FACILITIES EXIST. OR PROPOSED AT THIS TIME.

CO 1635

REVISIONS					REFERENCES		DATE
NO.	DATE	INITIAL	DESCRIPTION	APP'VD	D-2215, D-999	SCALE HORIZ 1"=100' VERT 1"=2'	
⚠	2-7-74	C.H.S.	Added Gen. Tel. Note	[illegible]	L-16 Pg 58-62	DESIGNED	
T	12-11-74	C.H.S.	Added S.C.E. Note	[illegible]	T-10 Pg 27	DRAWN R.W.S.	1-8-74
⚠	3-16-76	C.H.S.	As-Constructed.	[illegible]		TRACED	
⚠	5-28-80	H.H.	WET TAP ONLY B-516 107+62 CO 32630	[illegible]		CHECKED D.R.W.	1-10-76
						SUBMITTED [illegible] 1-16-76	

APPROVALS

DESIGN	CONSTRUCTION	OPERATIONS
[illegible]	[illegible]	[illegible]

RECOMMENDED _____

APPROVED _____ GENERAL MANAGER & CHIEF ENGINEER

EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

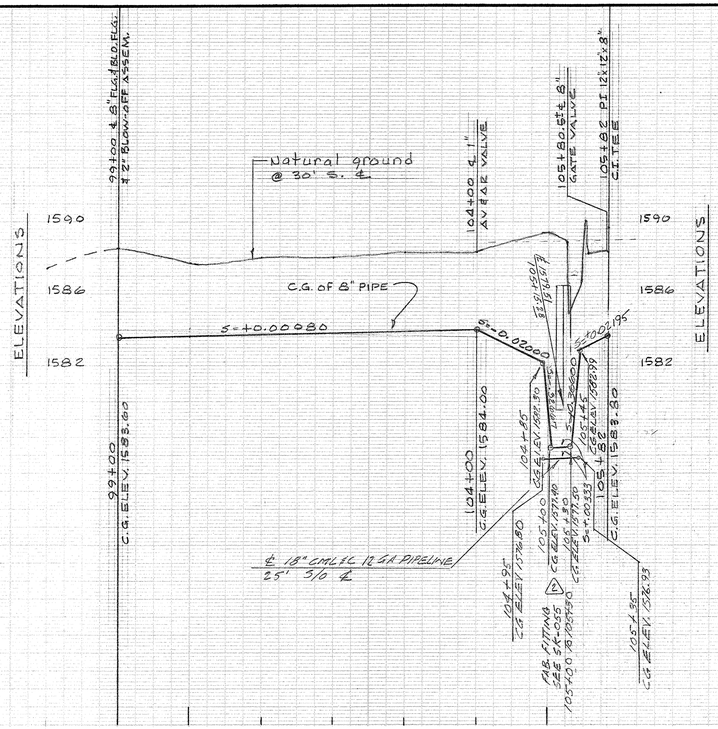
IMPROVEMENT DISTRICT No. 3

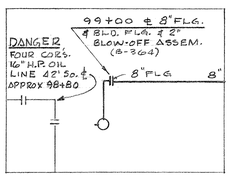
ALESSANDRO BLVD.
~105+83 - ~125+40

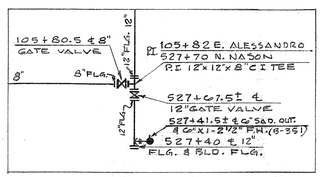
D-3639

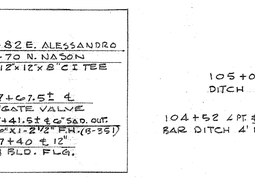
AS CONSTRUCTED

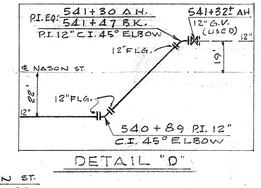
COORD. B-J

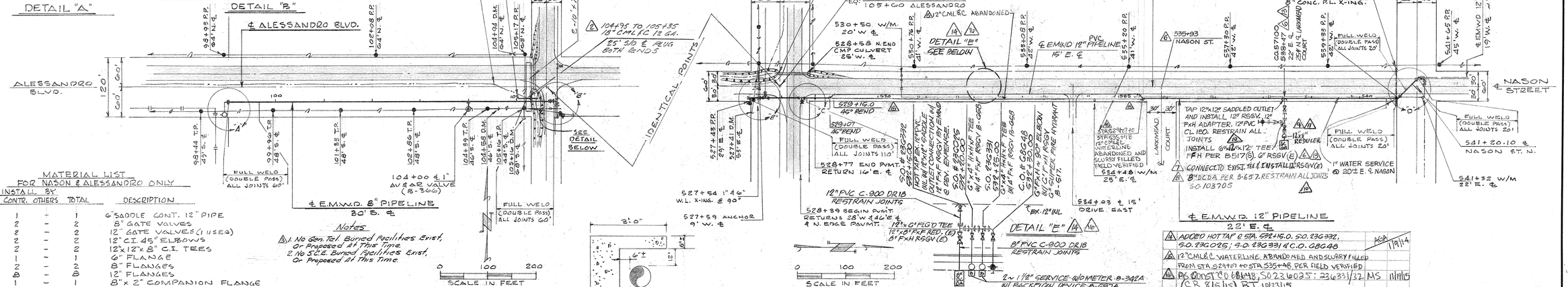


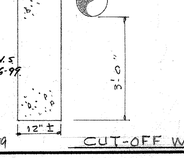












MATERIAL LIST
FOR NASON & ALESSANDRO ONLY
INSTALL BY

MK#	CONTR.	OTHERS	TOTAL	DESCRIPTION
1.	1	-	1	6" SADDLE CONT. 12" PIPE
2.	2	-	2	8" GATE VALVES
3.	2	-	2	12" GATE VALVES (1 USED)
4.	2	-	2	12" C.I. 45° ELBOWS
5.	2	-	2	12"x12"x 8" C.I. TEES
6.	1	-	1	6" FLANGE
7.	2	-	2	8" FLANGES
8.	8	-	8	12" FLANGES
9.	1	-	1	8"x 2" COMPANION FLANGE
10.	1	-	1	12" BLD. FLANGE
11.	4	-	4	8" GASKETS
12.	11	-	11	12" GASKETS
13.	1	-	1	6"x 1-2½" F.H. ASSEM. (B-351)
14.	1	-	1	2" BLOW-OFF ASSEM. (B-364)
15.	680'	-	680'	8" CML & C PIPE
16.	1410'	-	1410'	12" CML & C PIPE
17.	1	-	1	1" AV ℄ AR VALVE ASSEM. (B-366)
18.	1	-	1	SEE DET. ITEM #3
19.	40'	-	40'	18" CML/C 12 GA. PIPE

NO.	DATE	INITIAL	REVISIONS DESCRIPTION	APP'D
1	6-21-76	C.M.S.	AS CONSTRUCTED	
2	8-30-76	RMS	ADD FIG. FITTING & CO-105+15 ASSEMBLY (B-364)	
3	5-11-76	C.M.S.	Added Gen. Tel. Note	
4	5-29-96	C.M.S.	Added SCE Note	
5	6-14-96	C.M.S.	As-Constructed April Rev. #3-2894 Sheet	
6	10-3-96	RT	ADD SLIPFIT FH 25# N ℄ LARKMEAD CT. (OD 57100)	
7	12/18/01	PM	AS CONST CO 57100 (CR 12/15/09	
8	12-4-06	M.P.S.	AS CONST S.O. 103705 (C.R. 6-22-99)	C.M.S. 7-16-99
9	7-16-99	C.M.S.	CHANGE 6" RSGV TO 12" RSGV	VB 4/12/1999
10	4-12-99		INSTALL 6" RSGV(E); PER S.O. 103705	VB 4/12/1999
11	4-7-99		REVISE 6" DCDA TO 8" DCDA PER S.O. 103705	VB 4/12/1999
12	3-31-99			

REFERENCES	
T-10 3-5 PAS. 57-63 BK 11	
L-10 3-4 PAS. 44-48 BK 18	
RCRD FILE # 105	

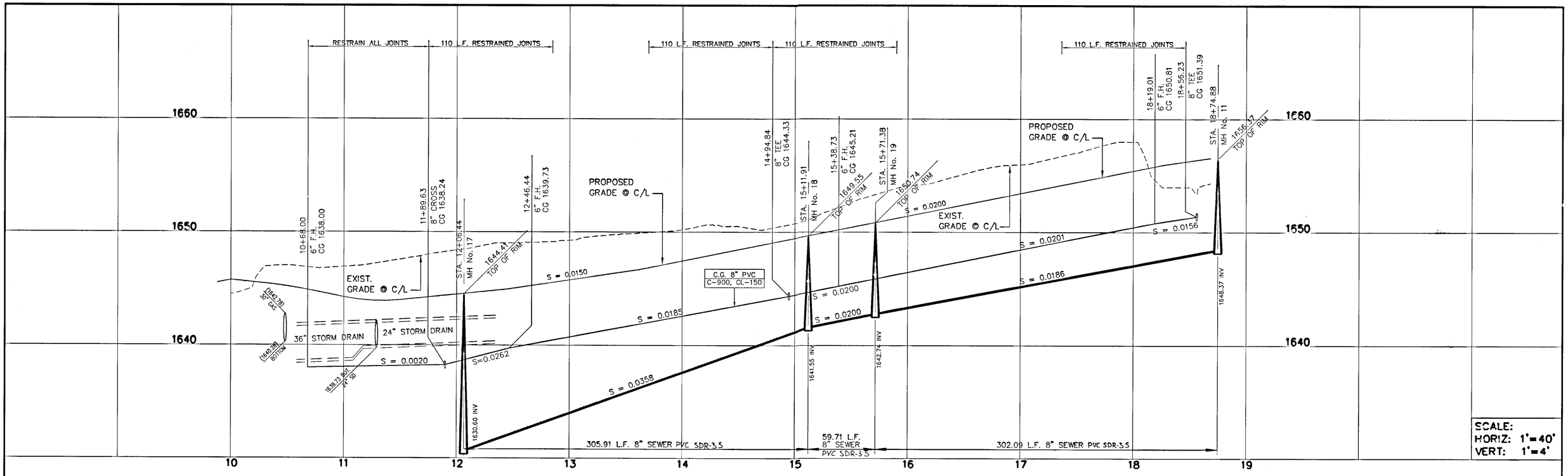
APPROVALS		
DESIGN	CONSTRUCTION	OPERATIONS

SCALE: HORIZ. 1"=100' VERT. 1"=4'
DESIGNED
DRAWN RWH. 3-10-70
TRACED
CHECKED
SUBMITTED
RECOMMENDED

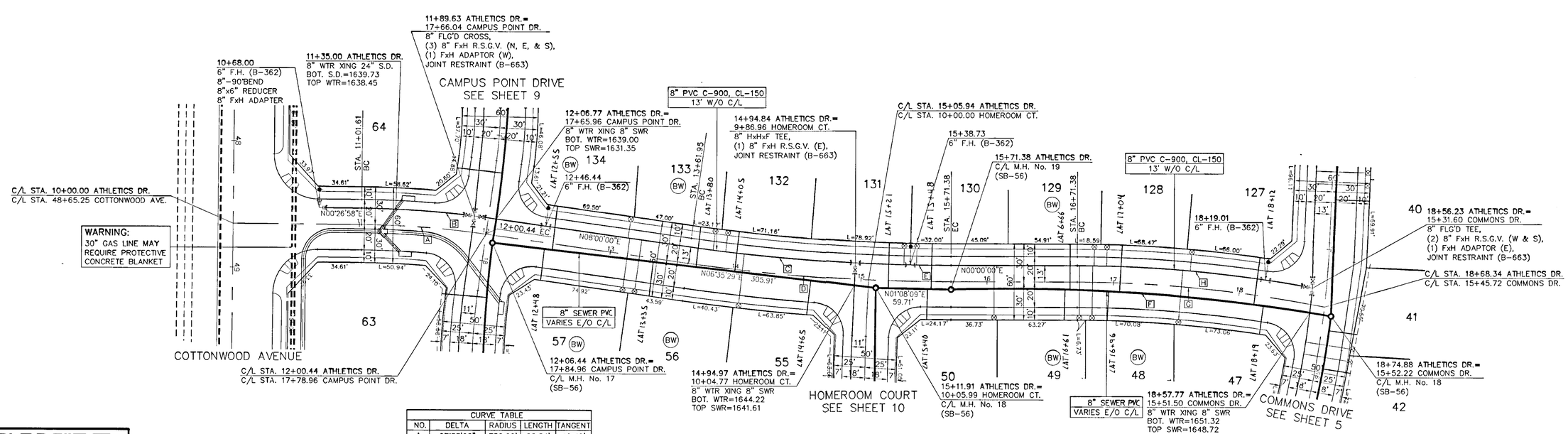
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA
IMPROVEMENT DISTRICT NO. 3
NASON ST. & ALESSANDRO BLVD. N. 1410' & W. 680'
PLAN & PROFILE ~ ALESSANDRO W. 660' NASON N. 1320'
APPROVED GENERAL MANAGER & CHIEF ENGINEER
D-2215

B.M. DATA
TBM: MONUMENT M-40-4 N.E. COR. ALESSANDRO & NASON STS.
ELEV. 1591.768

COORD. 7-1 & 8-1 AS CONSTRUCTED



SCALE:
HORIZ: 1"=40'
VERT: 1"=4'



CURVE TABLE				
NO.	DELTA	RADIUS	LENGTH	TANGENT
A	07°33'02"	750.00'	98.84'	49.49'
B	07°33'02"	763.00'	100.55'	50.35'
C	05°04'34"	1487.00'	131.74'	65.91'
D	08°00'00"	1500.00'	209.44'	104.89'
E	02°55'26"	1487.00'	75.88'	37.95'
F	11°32'21"	1500.00'	302.09'	151.56'
G	11°17'05"	1000.00'	196.96'	98.80'
H	10°35'27"	1013.00'	187.25'	93.89'

ATHLETICS DRIVE

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

0 10' 20' 30' 40' 80' 120' 160'

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Victor J. Barrio 3/3/03
CIVIL ENGINEER OF SUBDIVISIONS — DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M.	2-25-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-22-06	RE	AS CONST CO 65074/75 (CR 2-9-06)	RE 3-22-06

1 EMWD INSPECTOR EDDIE VALENZUELA

APPROVED BY: DATE: 3/25/03
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL CITY — REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL — REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

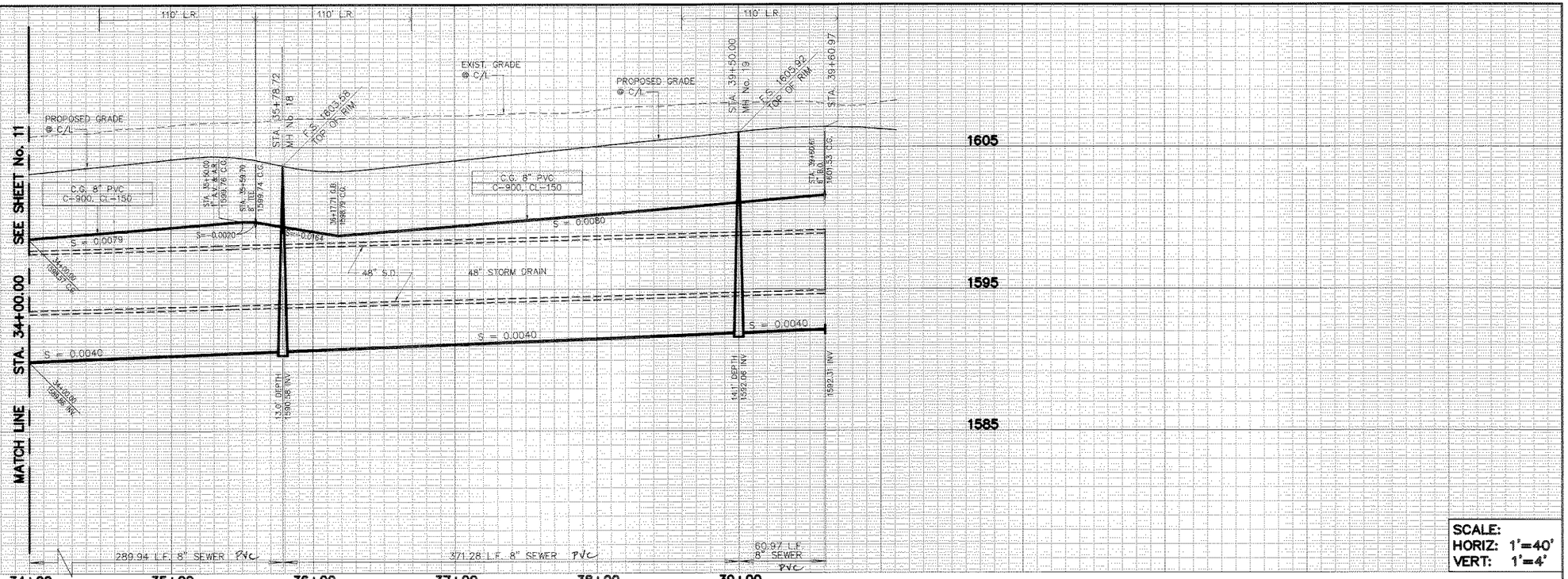
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 2-19-03 DATE
SCALE 1"=40'

IMPROVEMENT DISTRICT No. 3/U22

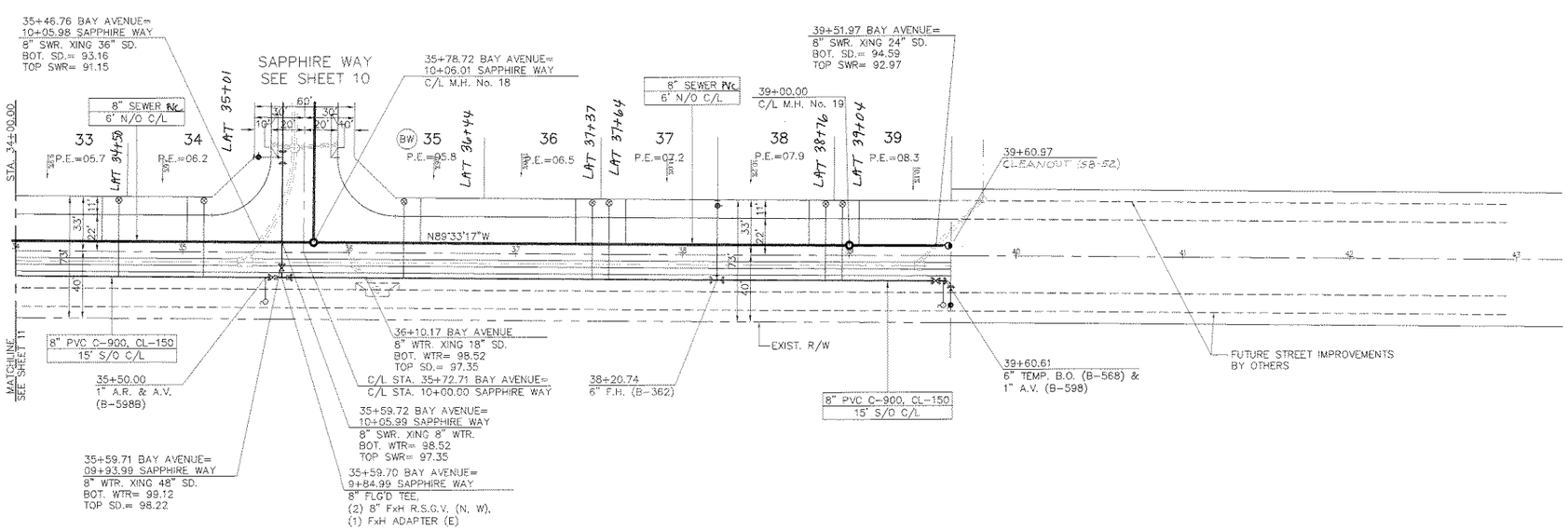
CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
ATHLETICS DRIVE

S.A.	41/32
W.O.	10-189
C.O.	65074-75
COORD.	61C-52
SHT.	8 OF 12
D-	25312



SCALE:
HORIZ: 1'=40'
VERT: 1'=4'



BAY AVENUE

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER / SEWER / RECLAIMED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Vicki J. Barajas
CIVIL ENGINEER OF SUBDIVISIONS
9/28/04
DATE

APPROVALS	INITIAL	DATE
PROJECT ENG.	JAT	9-28-04
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	11/24/08	EM	AS CONST CO 66082/83/84 [CR]	

APPROVED BY: DATE: 10/27/04
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL. CITY. REGISTERED PROFESSIONAL ENGINEER TRENT PULLIAM NO. 20517 EXP. 9-30-05 CIVIL STATE OF CALIFORNIA

SEAL. REGISTERED PROFESSIONAL ENGINEER JOHN DIERKSEN NO. 43886 EXP. 6-30-05 CIVIL STATE OF CALIFORNIA

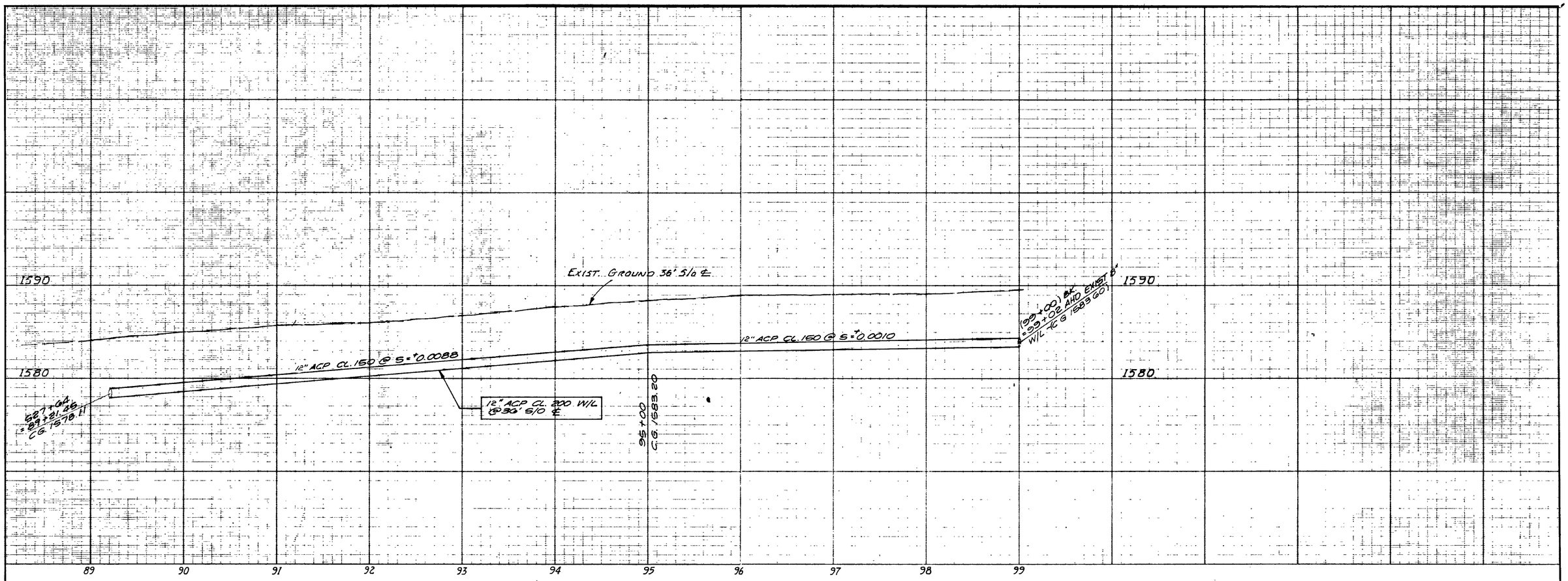
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 9-16-04 DATE
SCALE 1"=40'

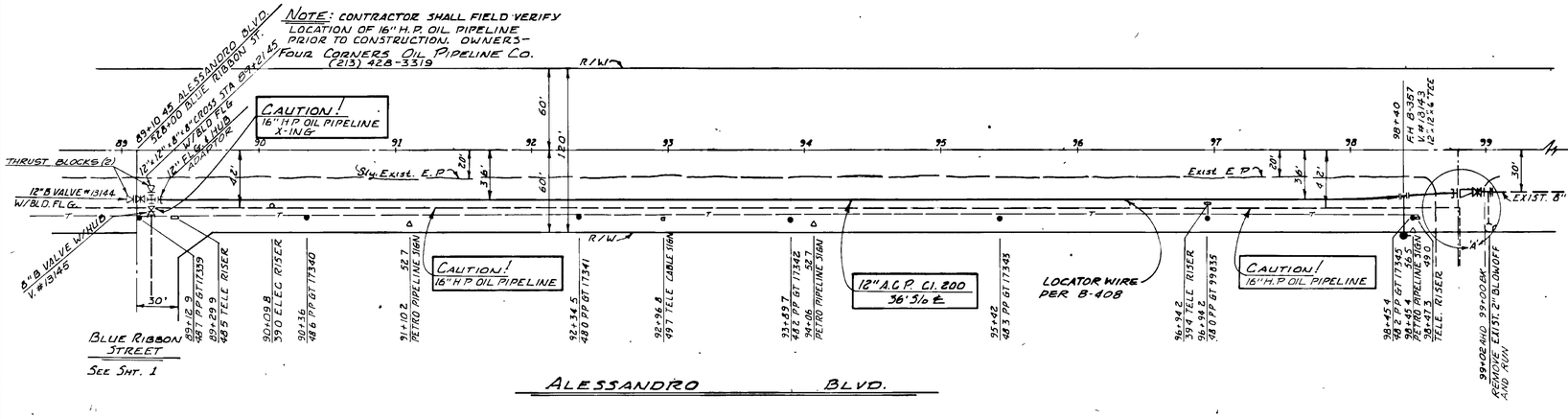
CITY OF MORENO VALLEY

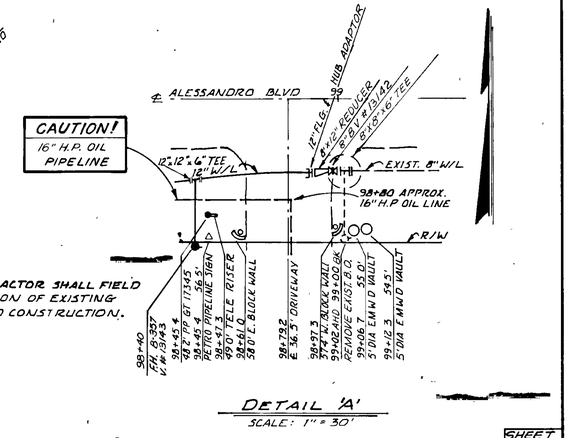
TRACT No. 31212
SEWER, WATER, & RECLAIMED WATER
PLAN & PROFILE
BAY AVENUE

I.D. #	3 & U-22
S.A.	42/32
W.O.	10650
C.O.	66082/83/84
COORD.	61-C-52
SHT.	12 OF 14
D-	29469

J:\ECT\WPH\31212\SWR\SW-12.dwg Wed Sep 15 17:38:36 2004 CaD







NOTE: CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING 8" W/L PRIOR TO CONSTRUCTION.

DETAIL 'A'
SCALE: 1" = 30'

B.M.: RIVERSIDE COUNTY B.M. # M-40-4 RESET. BRASS DISC. IN CONC. 48 FT. SO. OF ℄ ALLESANDRO & 36 FT EAST OF ℄ NASON ELEV.: 1588.421

APPROVED BY: James W. Leland R.C.E. 22102 DATE: 10/6/83

C.O. 19780
W.O. 84-213

SHEET 2 OF 2

IMPROVEMENT DISTRICT No 3

REVISIONS					REFERENCES		
NO.	DATE	INITIAL	DESCRIPTION	APP'VD	D-2215	SCALE 1"=50' HORZ. 1"=5' VERT	DATE
1	6/28/85	DB	AS CONSTRUCTED C.O. 19780 JGL	[illegible]		DESIGNED	
						DRAWN B.L.W. & Pb	7-6-83
						TRACED	
						CHECKED	
					APPROVALS	SUBMITTED [illegible] 10-17-83	
					DESIGN / CONSTRUCTION / OPERATIONS	RECOMMENDED	

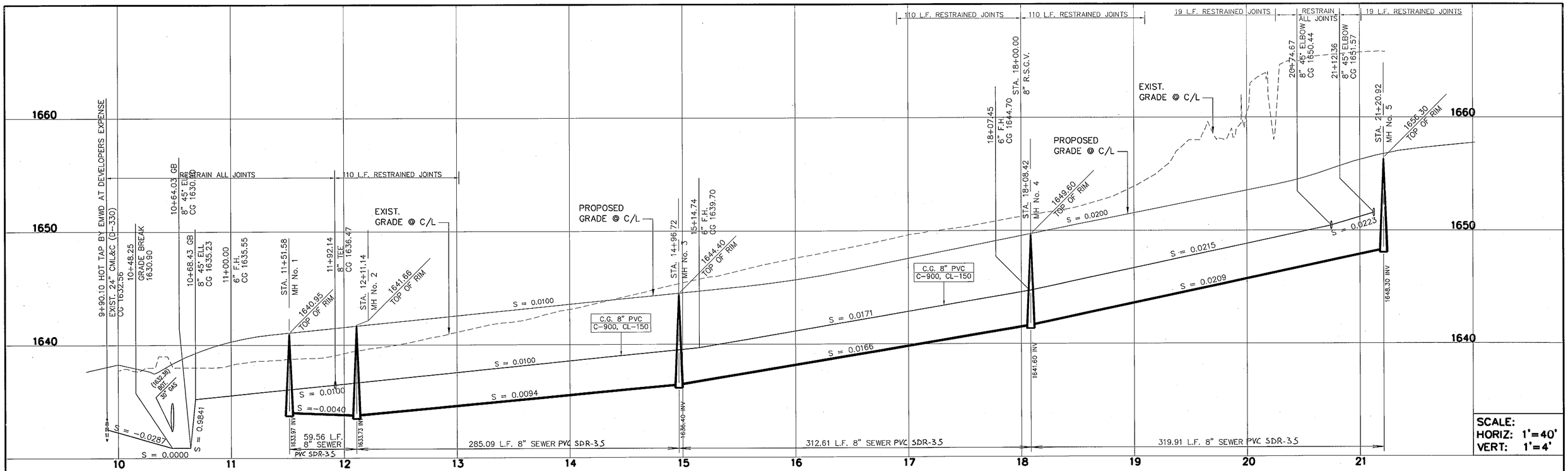
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

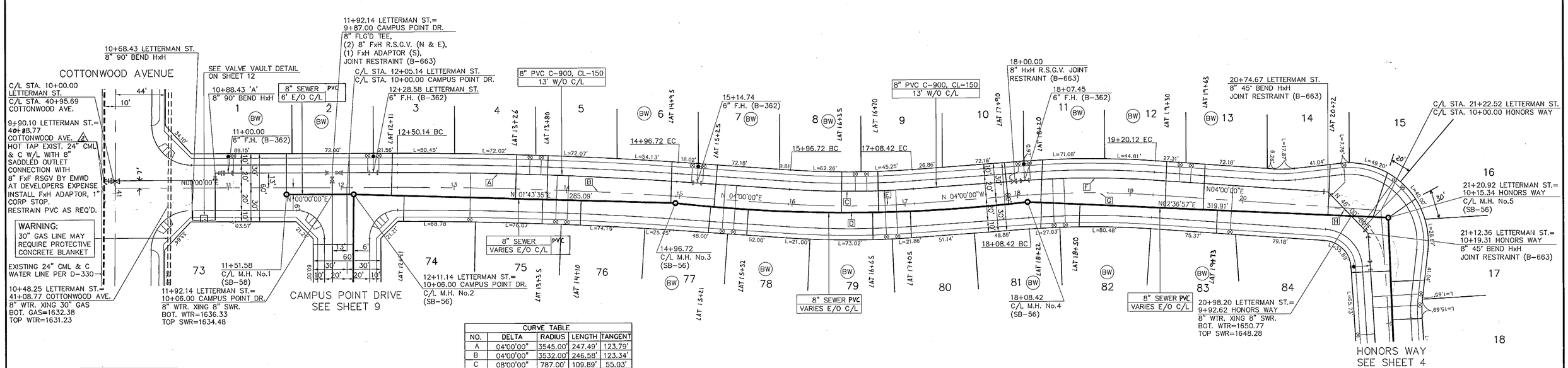
P.M. 8356
ALESSANDRO BLVD.
STA. 89+21.45 TO STA. 99+02

APPROVED [signature] CHIEF ENGINEER D-6737

I-8

1





CURVE TABLE				
NO.	DELTA	RADIUS	LENGTH	TANGENT
A	04°00'00"	3545.00'	247.49'	123.79'
B	04°00'00"	3532.00'	246.58'	123.34'
C	08°00'00"	787.00'	109.89'	55.03'
D	12°47'37"	1400.00'	312.61'	156.96'
E	08°00'00"	800.00'	111.70'	55.94'
F	08°00'00"	813.00'	113.52'	56.85'
G	08°00'00"	800.00'	111.70'	55.94'
H	82°14'44"	55.00'	78.95'	48.02'

SCALE:
HORIZ: 1'=40'
VERT: 1'=4'

0 10' 20' 30' 40' 80' 120' 160'

LETTERMAN STREET

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 3/13/03

APPROVALS	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M.	3-3-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS				
MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-21-06	RE	AS CONST CO 65074/25 (CR 2-9-06)	RE 3-21-06
2	2-15-13	Pdom	PER FIELD VERIF (K. HEWITT)	PDOM

△ EMWD INSPECTOR EDDIE VALENZUELA

APPROVED BY: DATE: 3/25/03
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 3-3-03 DATE
SCALE 1"=40'

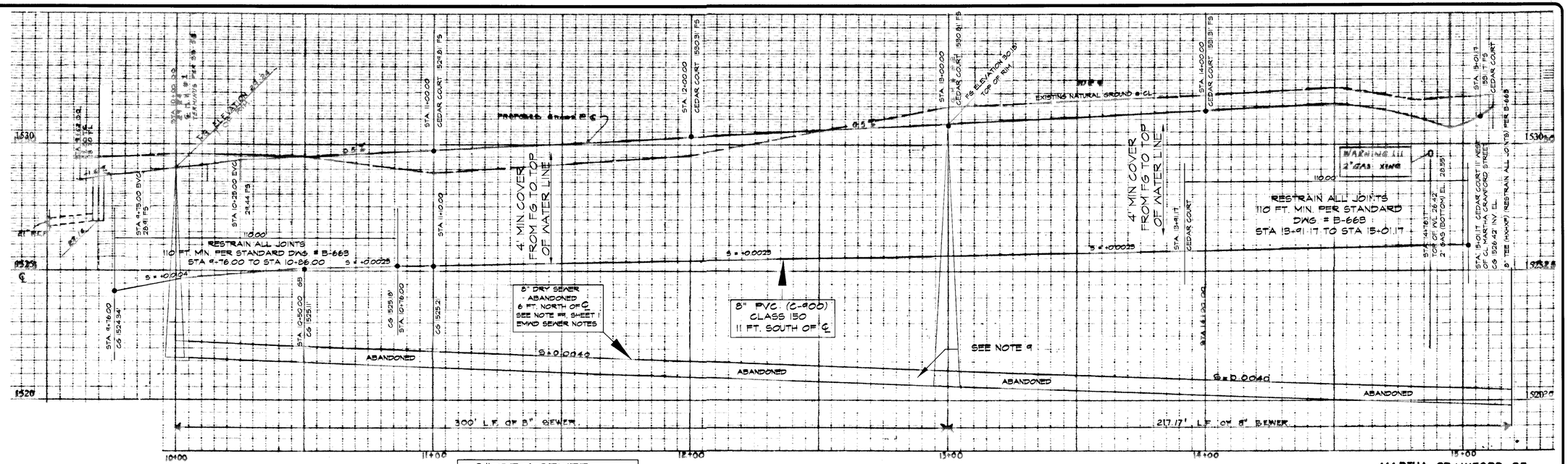
IMPROVEMENT DISTRICT No. 3/U22

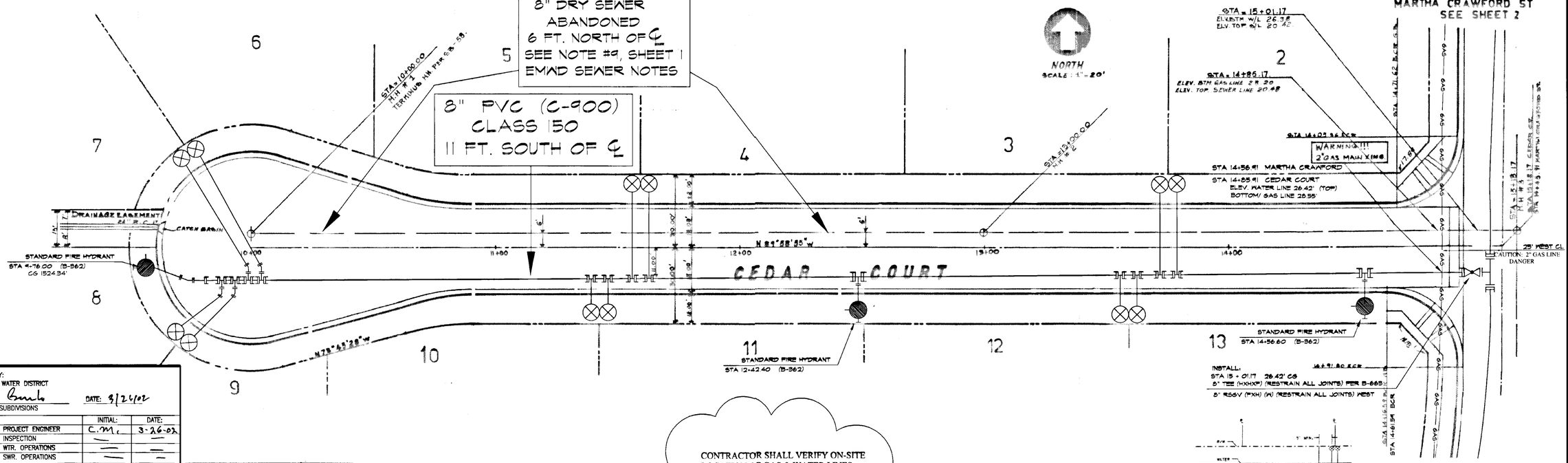
CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
LETTERMAN STREET

S.A.	41/32
W.O.	10-189
C.O.	65074-75
COORD.	61C-52
SHT.	3 OF 12
D-	25307

△2





CONTRACTOR SHALL VERIFY ON-SITE LOCATION OF GAS & WATER LINES, TOP & BOTTOM.

WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
BY: Carter J. Bowles DATE: 9/24/02
CIVIL ENGINEER OF SUBDIVISIONS

APPROVAL		INITIAL:	DATE:
	PROJECT ENGINEER	C.M.	3-26-02
	INSPECTION	—	—
	WTR. OPERATIONS	—	—
	SWR. OPERATIONS	—	—

Underground Service Alert
DIG ALERT BEFORE YOU DIG
Call: TOLL FREE 1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

APPROVED BY:
THE CITY OF MORENO VALLEY
BY: Linda Galland DATE: 4-17-02

BENCHMARK: M-40-4 (RESET) RIV. NO. M.L. ELEVATION = 1588.42'
BRASS DISK IN CONCRETE, 56 FEET EAST AND 48 FEET SOUTH OF CENTERLINE INTERSECTION OF NASSON STREET AND ALESSANDRO BOULEVARD, BRASS DISK, (M-40-4 RESET) ELEVATION 1588.42'

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY

RECOMMENDED FOR APPROVAL
DATE
CHECKED BY
DATE

DATE	BY	MARK	REVISIONS	APPR.	DATE
5-25-04	JES	1	AS CONST CO 6468 CR 6-13-03		5-25-04

ENGINEER DISTRICT
DESIGN BY: DRAWN BY: CHECKED BY:

EASTERN MUNICIPAL WATER DISTRICT

APPROVED BY: TRENT D. PULLIAM CITY ENGINEER DATE: 5/16/05
R.C.E. NO. 20517 EXPIRATION DATE: 9/30/05
⚠ EMWD INSPECTOR E. VALENZUELA

PRESSURE ZONE: 1764

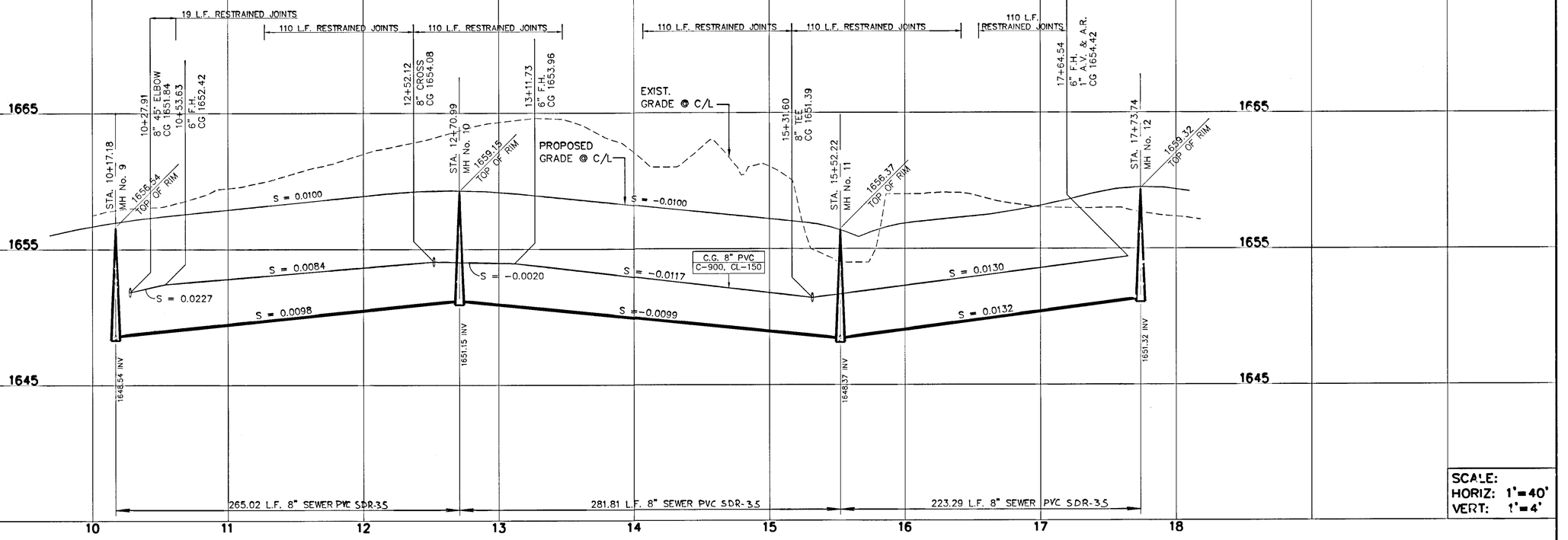
AGUIRRE & ASSOCIATES
BUILDING DESIGNERS
2222 KANSAS AVE. SUITE D
RIVERSIDE, CA. 92507 (909) 684-4222
PREPARED BY: R.C.E. NO. 55573
VICTOR RODRIGUEZ-FERNANDEZ RCE DATE: 09/21/02

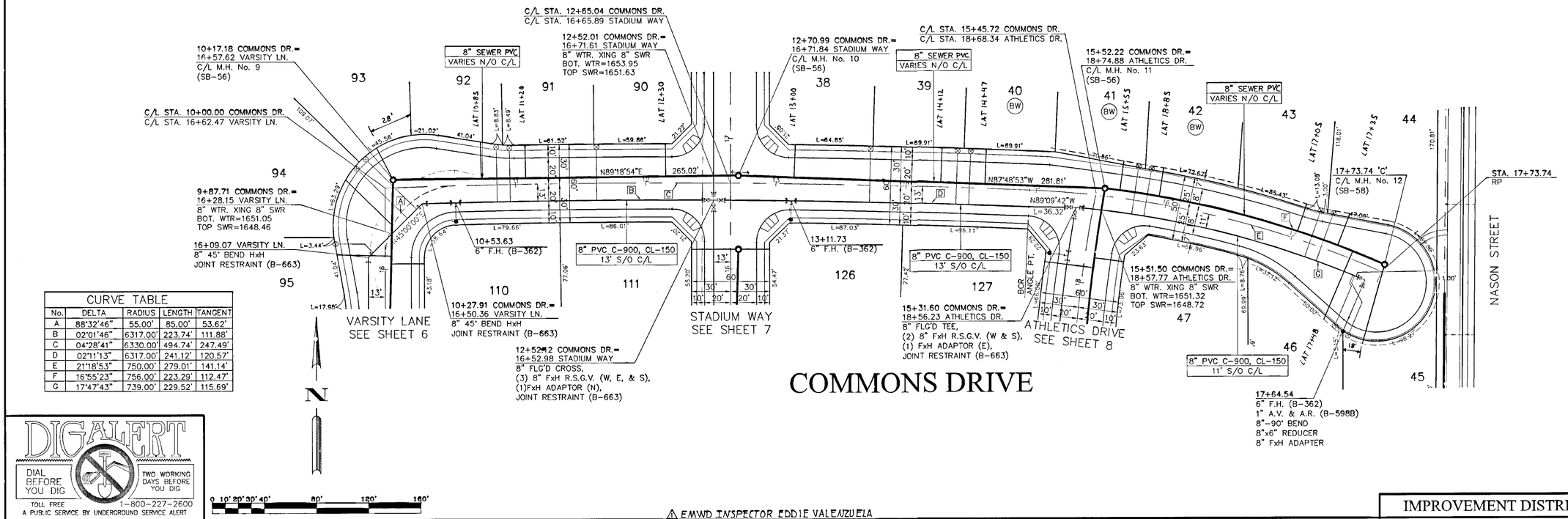
CITY OF MORENO VALLEY
TR-19879 - CEDAR COURT & MARTHA CRAWFORD STREET WATER IMPROVEMENT TITLE AND INDEX SHEETS
HORIZ. SCALE: 1"=20' VERT. SCALE: 1"=4'

SD-12579

I.D.	3
S.A.	41 & 32
W.O.	99-916
C.O.	64681
COORD.	61-C-52
	SHEET 3 OF 3
FILE NO.	D-11217

⚠1





CURVE TABLE				
No.	DELTA	RADIUS	LENGTH	TANGENT
A	88°32'46"	55.00'	85.00'	53.62'
B	02°01'46"	6317.00'	223.74'	111.88'
C	04°28'41"	6330.00'	494.74'	247.49'
D	02°11'13"	6317.00'	241.12'	120.57'
E	21°18'53"	750.00'	279.01'	141.14'
F	16°55'23"	756.00'	223.29'	112.47'
G	17°47'43"	739.00'	229.52'	115.69'

DIG ALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Victor J. Barrio — 3/3/03
CIVIL ENGINEER OF SUBDIVISIONS — DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M.	2-25-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-21-06	R.E.	AS COUST CO 65074/75 [CR 2-9-06]	RE 3-21-06

⚠ EMWD INSPECTOR EDDIE VALENZUELA

APPROVED BY: DATE: 3/25/03
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL DATE:
CHECK BY: DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 — 3-19-03 DATE
SCALE 1"=40'

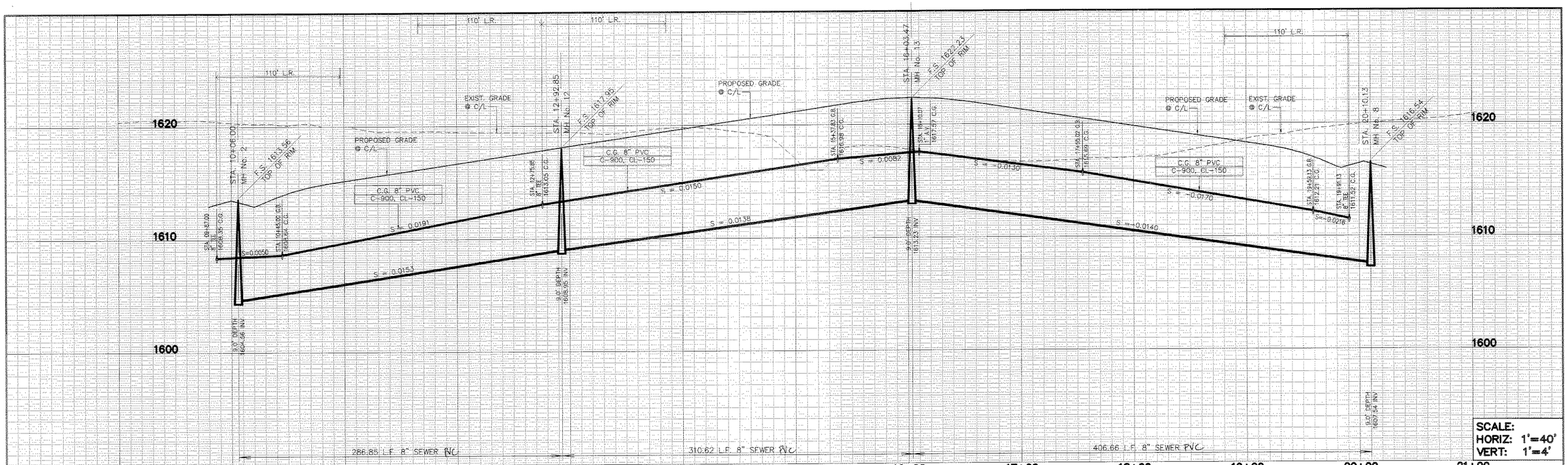
IMPROVEMENT DISTRICT No. 3/U22

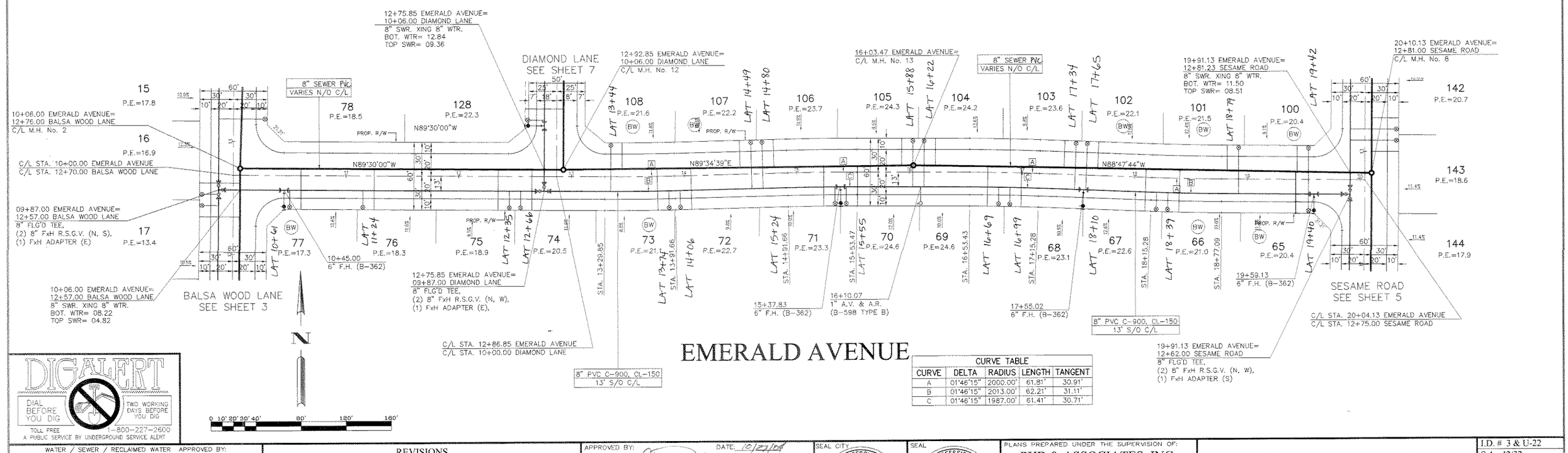
CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
COMMONS DRIVE

S.A.	41/32
W.O.	10-189
C.O.	65074-75
COORD.	61C-52
SHT.	5 OF 12
D-	25309

⚠





CURVE TABLE				
CURVE	DELTA	RADIUS	LENGTH	TANGENT
A	01°46'15"	2000.00'	61.81'	30.91'
B	01°46'15"	2013.00'	62.21'	31.11'
C	01°46'15"	1987.00'	61.41'	30.71'

DIGALERT — DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG — TOLL FREE 1-800-227-2600 — A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER / SEWER / RECLAIMED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 9/27/04

APPROVALS	INITIAL	DATE
PROJECT ENG.	JAT	9-23-04
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	11/8/05	EM	AS CONST CO 660082/83/84 IOR	

APPROVED BY: TRENT D. PULLIAM, CITY OF MORENO VALLEY — DATE: 10/27/04
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL — DATE:
CHECK BY: — DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

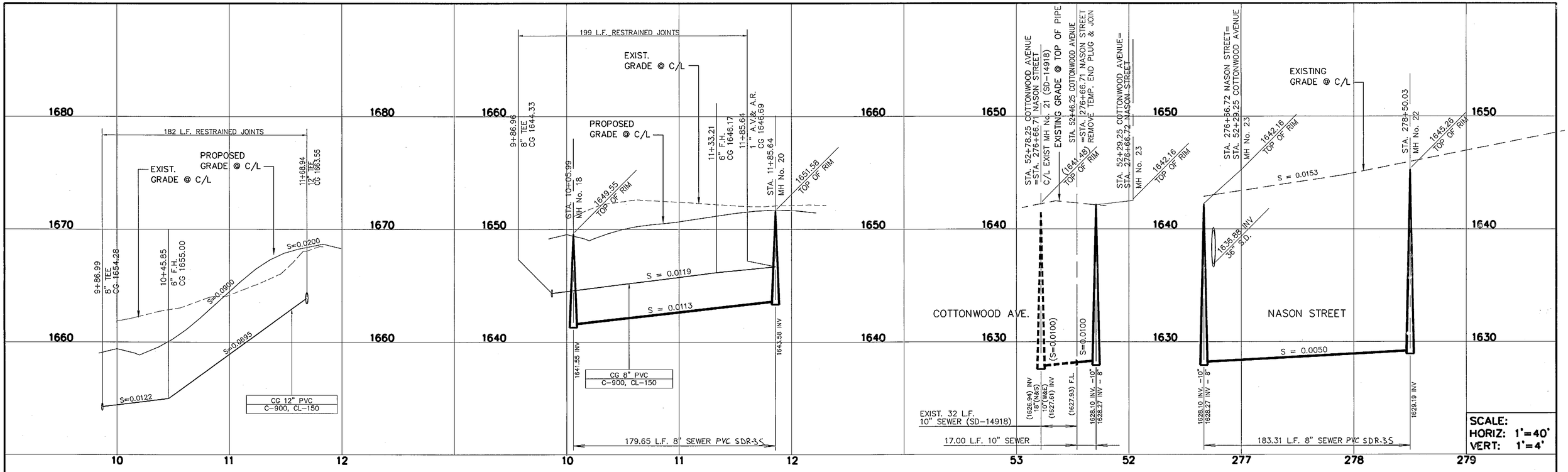
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN — RCE 43886 — DATE 9-16-04
SCALE 1"=40'

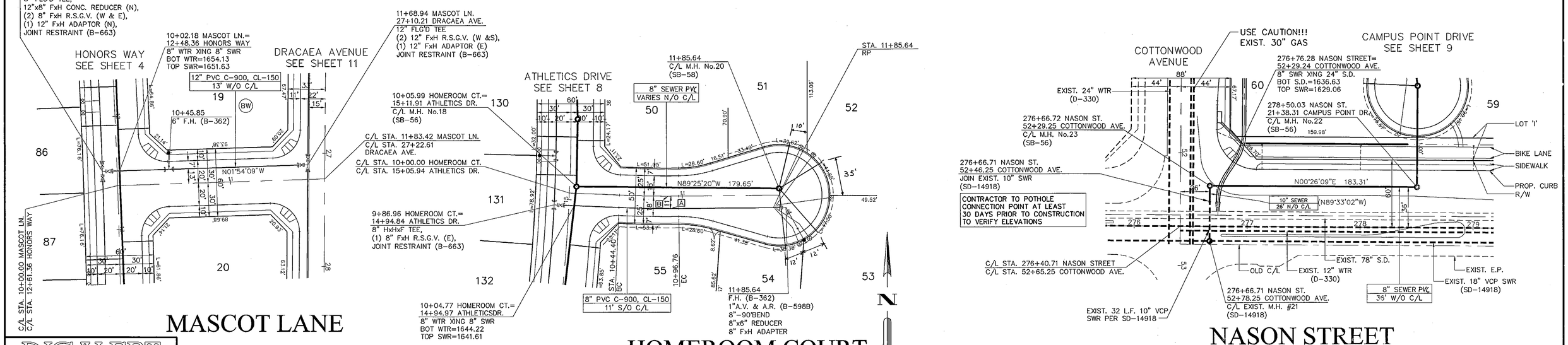
CITY OF MORENO VALLEY

TRACT No. 31212
SEWER, WATER, & RECLAIMED WATER
PLAN & PROFILE
EMERALD AVENUE

I.D. # 3 & U-22
S.A. 42/32
W.O. 10650
C.O. 660082/83/84
COORD. 61-C-52
SHT. 8 OF 14
D- 2946-5

D:\EDIT\MPH\31212\SW-8.dwg Wed Sep 15 17:36:48 2004 CaD





DIGALERT — DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG — TOLL FREE 1-800-227-2600 — A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

⚠ EMWD INSPECTOR EDDIE VALENZUELA

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Vicky J. Brough 3/13/03
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS					
	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M.	2-26-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS				
MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-22-06	RE	AS CONST CO 65074/75 [CR2-9-06]	RE 3-22-06

APPROVED BY: DATE: 3/25/03
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

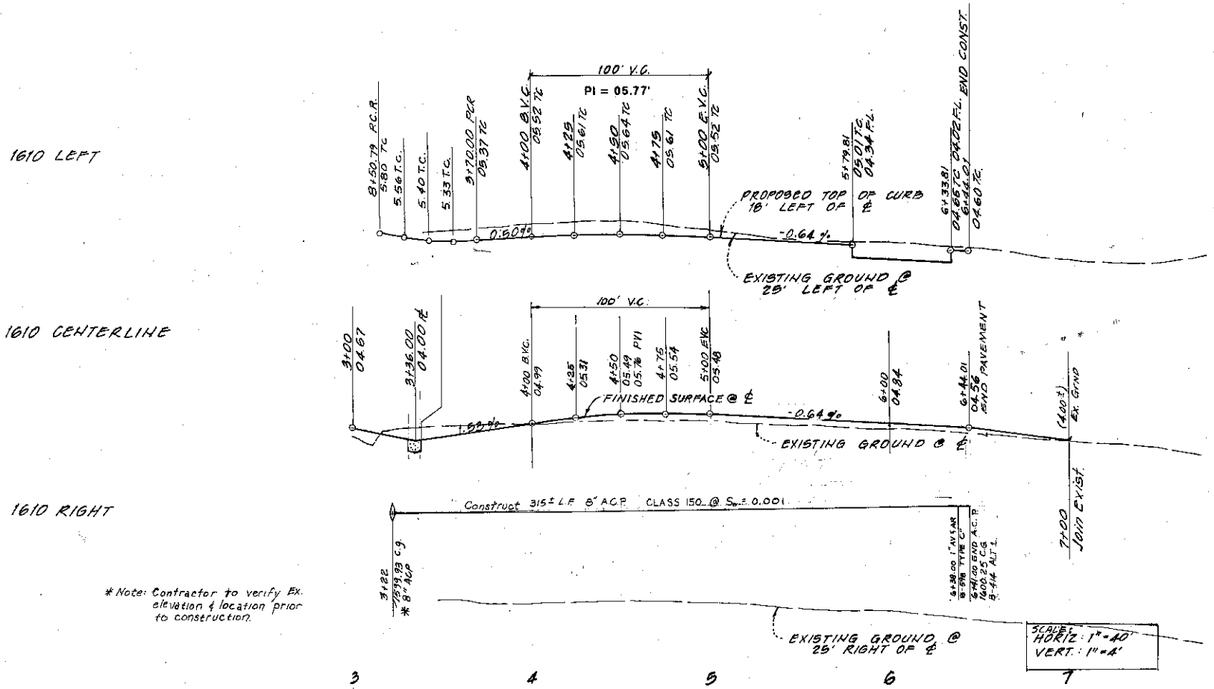
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 2-19-03 DATE
SCALE 1"=40'

IMPROVEMENT DISTRICT No. 3/U22

CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
MASCOT LN., HOMEROOM CT., & NASON STREET

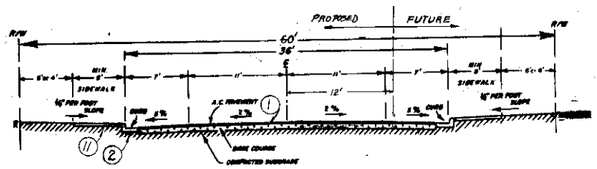
S.A.	41/32
W.O.	10-189
C.O.	G5074-75
CCORD.	61C-52
SHT.	10 OF 12
D-	25314



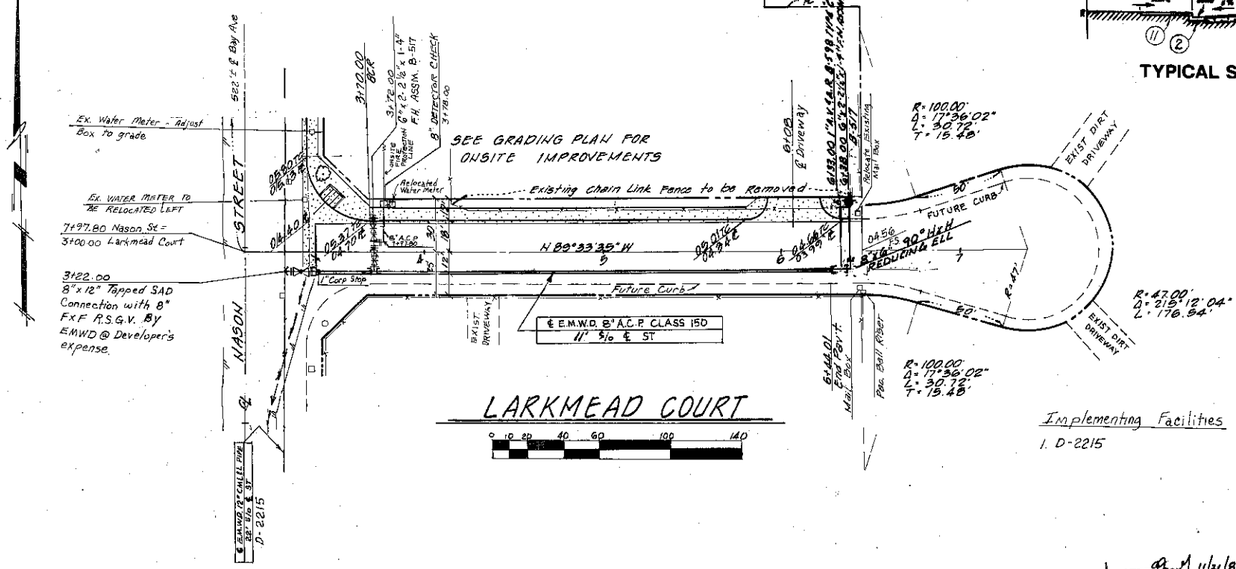
* Note: Contractor to verify Ex. elevation & location prior to conseruction.

EMWD WATER LINE GENERAL NOTES

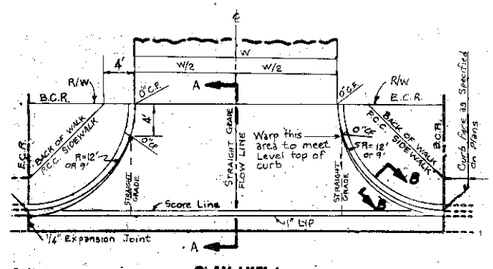
1. WATER LINE AND APPURTENANT CONSTRUCTION, INSTALLATION, SHALL BE IN ACCORDANCE WITH E.M.W.D. STD. DRAWINGS AND SPECIFICATIONS.
2. WATER SYSTEM PROFILE ELEVATIONS ARE TO CENTERLINE (CENTER GRADE) OF PIPE.
3. PRIOR TO CONSTRUCTION OF PIPELINE, CONTRACTOR SHALL EXPOSE EXISTING WATER SYSTEM AND VERIFY ITS EXISTING ELEVATION AND LOCATION.
4. FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH E.M.W.D. STD. DRAWING B-517 CAPS AND CROWNS PAINTED Green.
5. ALL-THRUST BLOCKS SHALL BE INSTALLED IN ACCORDANCE WITH E.M.W.D. STD. DRAWING B-407.
6. AIR VALVES SHALL BE INSTALLED IN ACCORDANCE WITH E.M.W.D. STD. DRAWINGS B-598, TYPE "C".
7. ALL MATERIALS TESTING AND INSPECTION OF PIPE SHALL BE IN CONFORMITY WITH THE REQUIREMENTS OF THE AMERICAN WATER WORKS ASSOCIATION (A.W.W.A.) STANDARDS.
8. ALL PIPE THROUGH 12" DIAMETER TO BE CLASS 150. PIPE SHALL CONFORM TO A.W.W.A. SPECIFICATIONS.
9. MINIMUM PIPE COVER SHALL BE 48".



TYPICAL SECTION LARKMEAD COURT
T.I. = 5.5



VICINITY MAP



CITY OF MORENO VALLEY STANDARD FOR COMMERCIAL/INDUSTRIAL APROACH

NOTES:
1. APPROACHES EXCEEDING 20' IN WIDTH SHALL BE SCORED 1½" DEEP AT CENTER OF APPROACH.
2. CONCRETE SHALL BE CLASS 520-C-2500

DRIVEWAY DETAIL

ITEM	QUANTITY
1. 8" ACP CLASS 150	319 LF
2. 8" X 12" TAPPED SAD CONNECTION	1 EA
3. 6" X 2-2 1/2" X 1-4" F.H. ASSEMBLY B-517	2 EA
4. 8" DETECTOR CHECK	1 EA
5. RELOCATE EXISTING WATER METER	1 EA
6. 1" AV & AR B-598 TYPE C	1 EA
7. END PLUG INSTALLATION B-414 ALT 1	1 EA

THIS PLAN SUBSTANTIALLY COMPLIES WITH APPLICIABLE RECOMMENDATIONS OF THE PRELIMINARY SOILS INVESTIGATION
Robert M. Beebs 8-22-89
Robert M. BEEBS DATE
RCE 39405 EXP. DATE 12-31-89

CONFORMS TO MASTER PLAN | WATER [signature] 11/21/89 | SEWER ——

WATER CERTIFICATION
I certify that the design of the Water System in P.U.P. 4018 is in accordance with the Water System expansion plans of the Eastern Municipal Water District, and that the water service, storage and distribution system will be adequate to provide water service to such tract. This certification does not constitute a guarantee that it will supply water to such tract at any specific quantities, flows or pressures for fire protection or any other purpose.

EASTERN MUNICIPAL WATER DISTRICT
By: [signature] Chief Engineer 12-4-89 Date

REGISTERED PROFESSIONAL ENGINEER ROBERT M. BEEBS No. C-39405 Exp. 12-31-89 CIVIL STATE OF CALIFORNIA

WATER APPROVED BY: EASTERN MUNICIPAL WATER DISTRICT
[signature] 12/1/89
DIRECTOR OF ENGINEERING DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	CB	10/31	SEWER OPER.	—	—
PLANNING	CB	11/1	CONSTRUCTION	—	—
WATER OPER.	[signature]	11/21	DESIGN	[signature]	10/31

MARK	DATE	INITIAL	REVISIONS DESCRIPTION	APPROVAL
A	3/9/10	JA	AS CONST. ON 41200 (CCR 3/11/09)	Pat 3/9/10

PREPARED BY: Robert M. Beebs — REGISTERED CIVIL ENGINEER NO. 39405 — EXPIRATION DATE 12-31-89
DATE 10-17-89
APPROVED
DATE

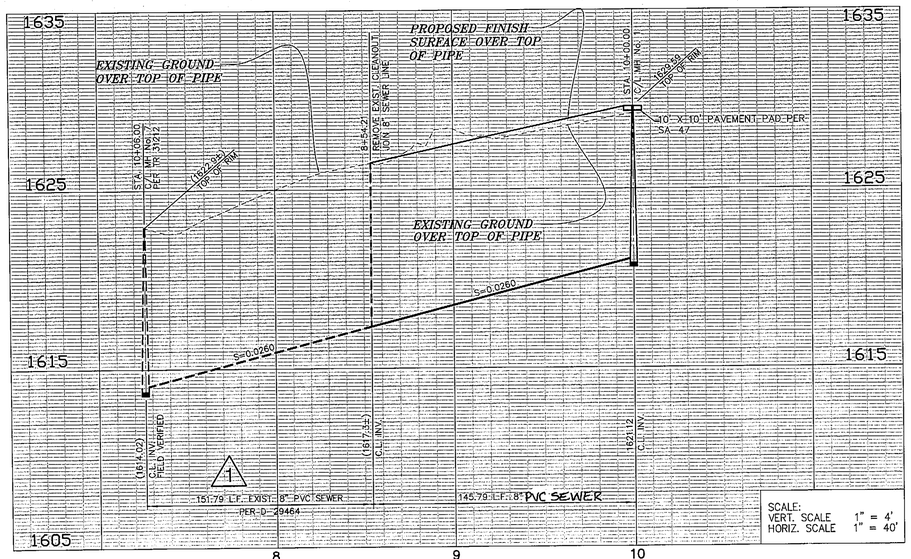
M.V. FIRE PREV. 10/19/89
SCALE 1"=40'
DATE FEB. 1989
BENCH MARK:

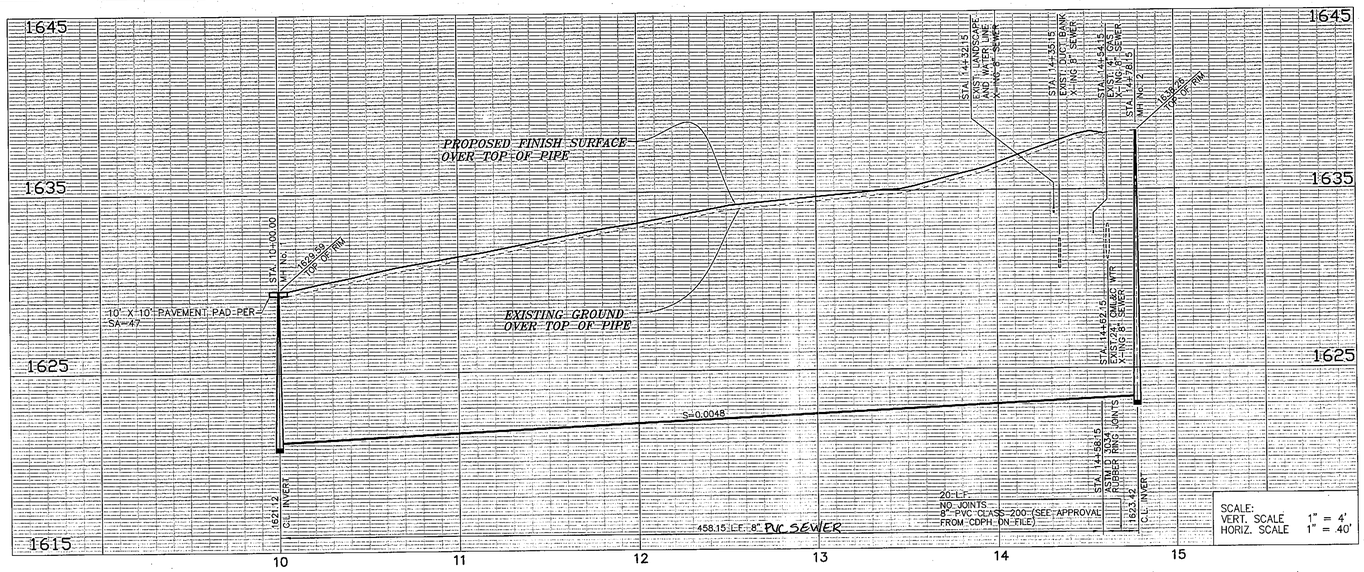
MORENO CHRISTIAN ASSEMBLY
13830 NASON STREET
MORENO VALLEY, CA 92388
P.U.P 4018
W.O. FOP

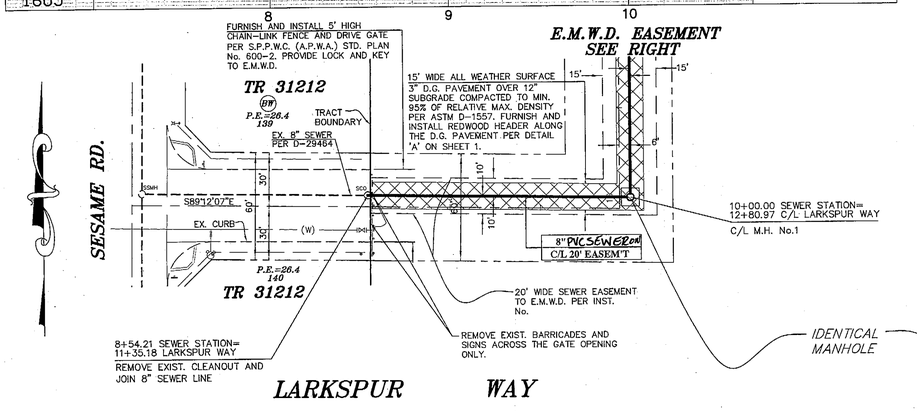
CITY OF MORENO VALLEY
P.U.P. NO. 4018
SEWER AND WATER PLAN AND PROFILE & INDEX MAP

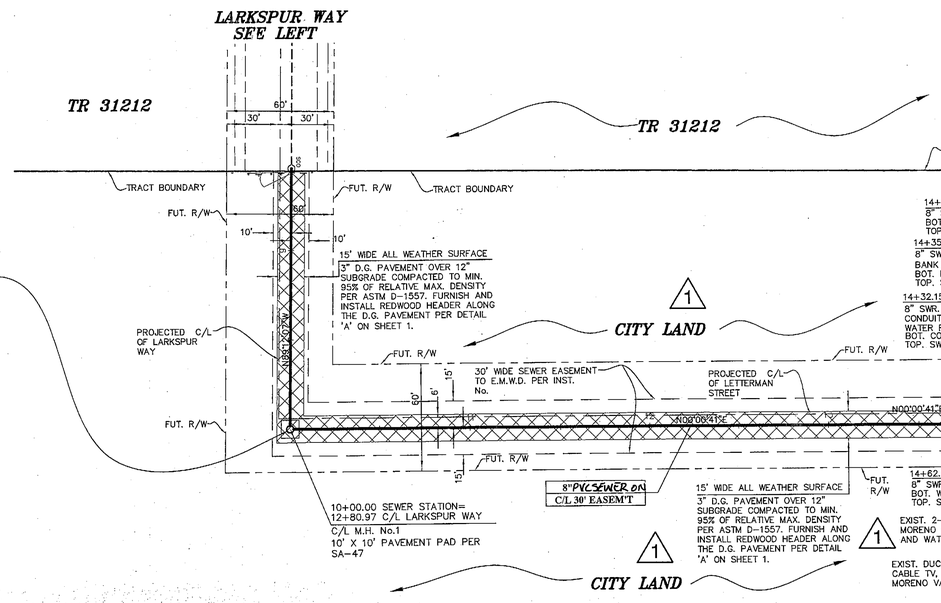
SERV. AREA 41
W.O. 90-220
C.O. 41200
COORD. SSA 04
SHT. 1 of 4
D-11780

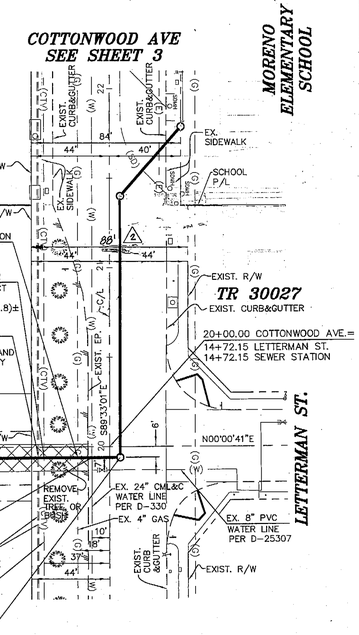
1











GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOTE

ALL THE ELEVATIONS SHOWN ON THIS PLAN FOR ALL EXISTING UTILITIES ARE BASED ON RECORD DRAWINGS AND POTHOLE INFORMATION.

NOTE: C.D.P.H. APPROVAL DATE 3/16/11 ON FILE FOR SEPERATION OF WATER AND SEWER BETWEEN STATION 14+62.15 TO STATION 14+78.15.

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.
Underground Service Alert
Call: TOLL FREE 1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

RIVERSIDE COUNTY BENCHMARK :

A BRASS DISK SET IN TOP OF CONCRETE POST STAMPED M-40-4 RESET 1976 AT THE SOUTH CORNER OF NASON STREET AND ALESSANDRO BLVD; 56.0 FEET EAST OF CENTERLINE OF NASON STREET; 48 FEET SOUTH OF ALESSANDRO BLVD; 3' WEST OF TP #GT - 70306, 1.0 FEET NORTH OF A 4" X 4" MARKER POST

ELEV. 1588.42 FEET
VERTICAL DATUM: NGVD 29

SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — 10/04/11 DATE

APPROVALS

	INITIAL	DATE
PROJECT ENGINEER	L.A.M.	10/04/11

MARK	DATE	INITIAL	DESCRIPTION	APPR	DATE
1	9/13/11	T.J.	SUPERSEDED APPROVED PLANS DATED 5/19/11 REVISED NOTES	SMM	10/04/11
2		T.J.	REVISE COTTONWOOD AVE. RW DIMENSION	SMM	3/6/12
3	6/13/12	MS	AS CONST CD (68437 CCR 6/11/12)	PM	6/14/12
		E.O.R.	REVISION		

CITY OF MORENO VALLEY
APPROVALS

PREM KUMAR — 10/20/11 DATE
DEPT. PW DIR. / ASST. CITY ENGINEER
R.C.E. #052463

CHRIS A. VOGT — 10/24/11 DATE
PUBLIC WORKS DIRECTOR/CITY ENGINEER
R.C.E. #044250

C52822 Exp. 6-30-13 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

JTN 1708

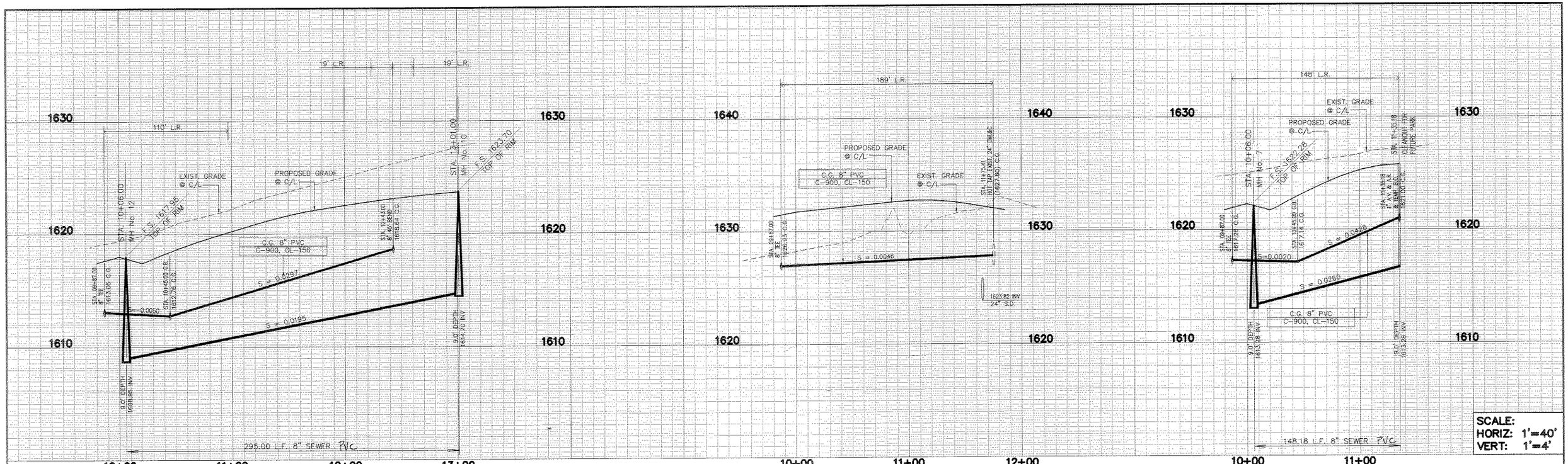
JT ENGINEERING
ENGINEERING TECHNOLOGY
Civil/Structural Engineering • Planning • Land Surveying
33336 N. Agua Dulce Cyn. Rd. #103, Agua Dulce, CA 91390
Phone (661) 268-8899 Fax (661) 268-1936
www.jtengineering.com

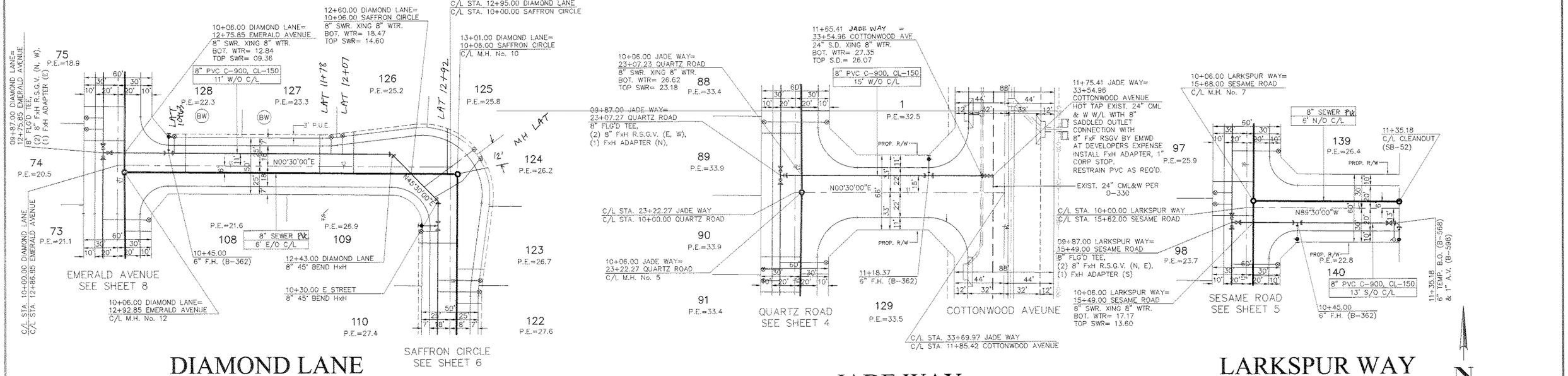
CITY OF MORENO VALLEY

MORENO ELEMENTARY SCHOOL
OFFSITE SEWER IMPROVEMENT PLANS
PLAN AND PROFILE

I.D.	19
S.A.	32
W.O.	12-914
C.O.	G8437
COORD.	61C-52
SHEET	2 OF 3
	D-42679
CITY FILE NO.	

3





SCALE:
HORIZ: 1"=40'
VERT: 1"=4'

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER / SEWER / RECLAIMED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 9/23/04

APPROVALS	INITIAL	DATE
PROJECT ENG.	JAT	9-23-04
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	11/24/08	EM	AS CONST CO 60082/83/84 [CR]	

APPROVED BY: DATE: 10/27/04
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
CHECK BY: DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER TRENT PULLIAM NO. 20517 EXP. 9-30-05 CIVIL STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER JOHN DIERKSEN NO. 43886 EXP. 6-30-05 CIVIL STATE OF CALIFORNIA

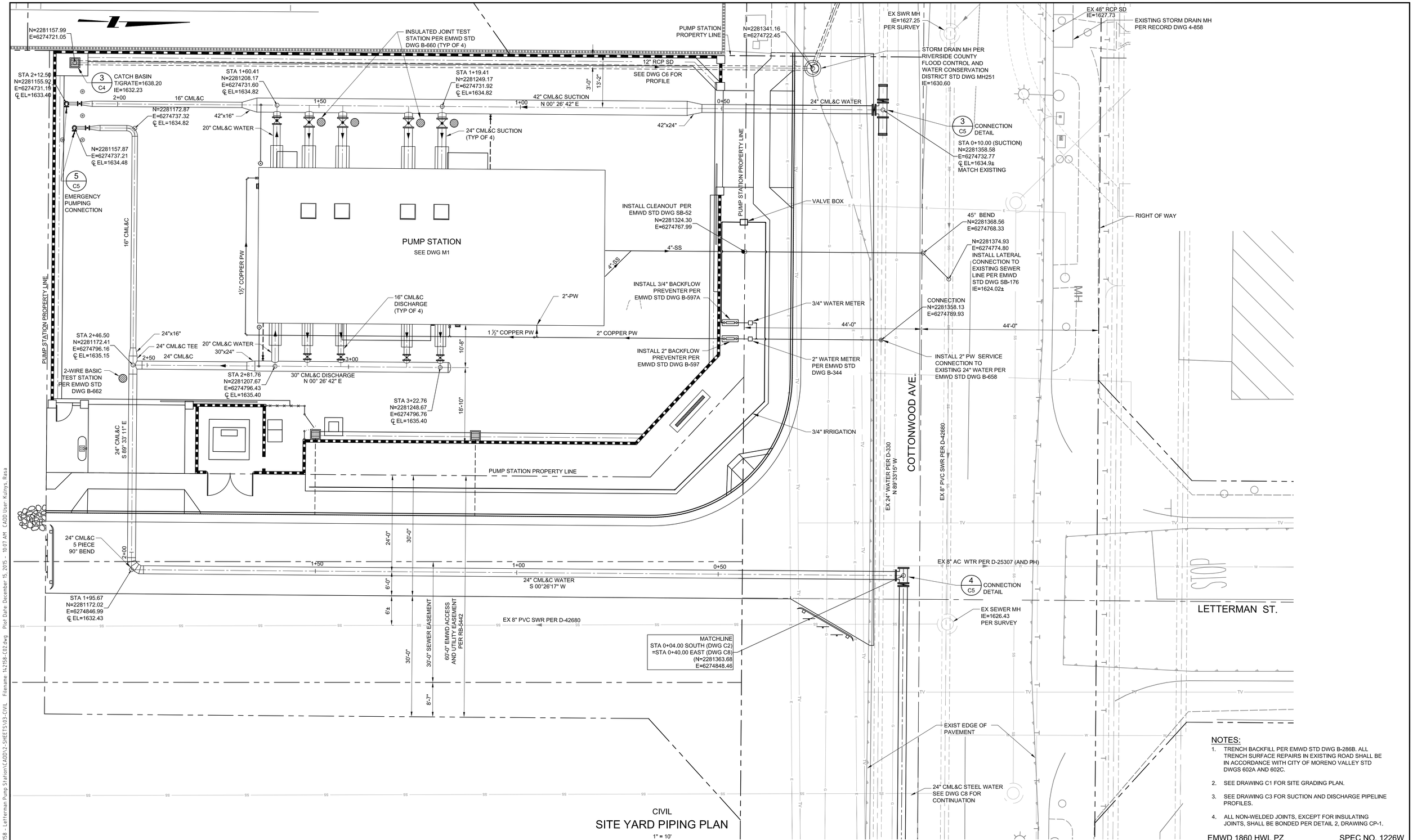
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING-SURVEYING-LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 DATE 9-16-04
SCALE 1"=40'

CITY OF MORENO VALLEY

TRACT No. 31212
SEWER, WATER, & RECLAIMED WATER
PLAN & PROFILE
JADE WAY, DIAMOND LANE, & LARKSPUR WAY

I.D. #	3 & U-22
S.A.	42/32
W.O.	10650
C.O.	60082/83/84
COORD.	61-C-52
SHT.	7 OF 14
D-	29464

J:\ECT\WP11\31212\SW\SW-7.dwg Wed Sep 15 17:38:16 2004 CnD



CIVIL

SITE YARD PIPING PLAN

1" = 10'

NOTES:

1. TRENCH BACKFILL PER EMWD STD DWG B-286B. ALL TRENCH SURFACE REPAIRS IN EXISTING ROAD SHALL BE IN ACCORDANCE WITH CITY OF MORENO VALLEY STD DWGS 602A AND 602C.
2. SEE DRAWING C1 FOR SITE GRADING PLAN.
3. SEE DRAWING C3 FOR SUCTION AND DISCHARGE PIPELINE PROFILES.
4. ALL NON-WELDED JOINTS, EXCEPT FOR INSULATING JOINTS, SHALL BE BONDED PER DETAIL 2, DRAWING CP-1.

EMWD 1860 HWL PZ

SPEC NO. 1226W

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UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1·800·227·2600
TWO WORKING DAYS BEFORE YOU DIG

Brown AND Caldwell

REVISIONS

No.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	11-04-15	APK	AS CONSTRUCTED C.O. 468721		10-15-15

REGISTERED PROFESSIONAL ENGINEER
JEFFREY J. ENDERSBY
NO. C48237
CIVIL
STATE OF CALIFORNIA

BC JOB NO. 142158

APPROVED BY:
Joe Mouawad 3-25-13
EMWD DIRECTOR OF ENGINEERING DATE

CITY OF MORENO VALLEY

REVIEWED BY:
Mark Sambito 3-27-13
CITY ENGINEER DATE

EASTERN MUNICIPAL WATER DISTRICT

Gregory J. Kowalski 3-25-13
PROJECT MANAGER DATE

APPROVALS	INITIAL	DATE
PROJECT ENG.	RR	3-19-13
INSPECTION	CW	3-22-13
WTR. OPERATIONS	KG	3-19-13
MAINTENANCE	MI	3-19-13

		DATE
DESIGNED	VCH	11/26/12
DRAWN	RAC	11/26/12
TRACED	N/A	N/A
CHECKED	JJE	11/26/12
SUBMITTED		11/26/12

SCALE: 1" = 10'

EASTERN MUNICIPAL WATER DISTRICT

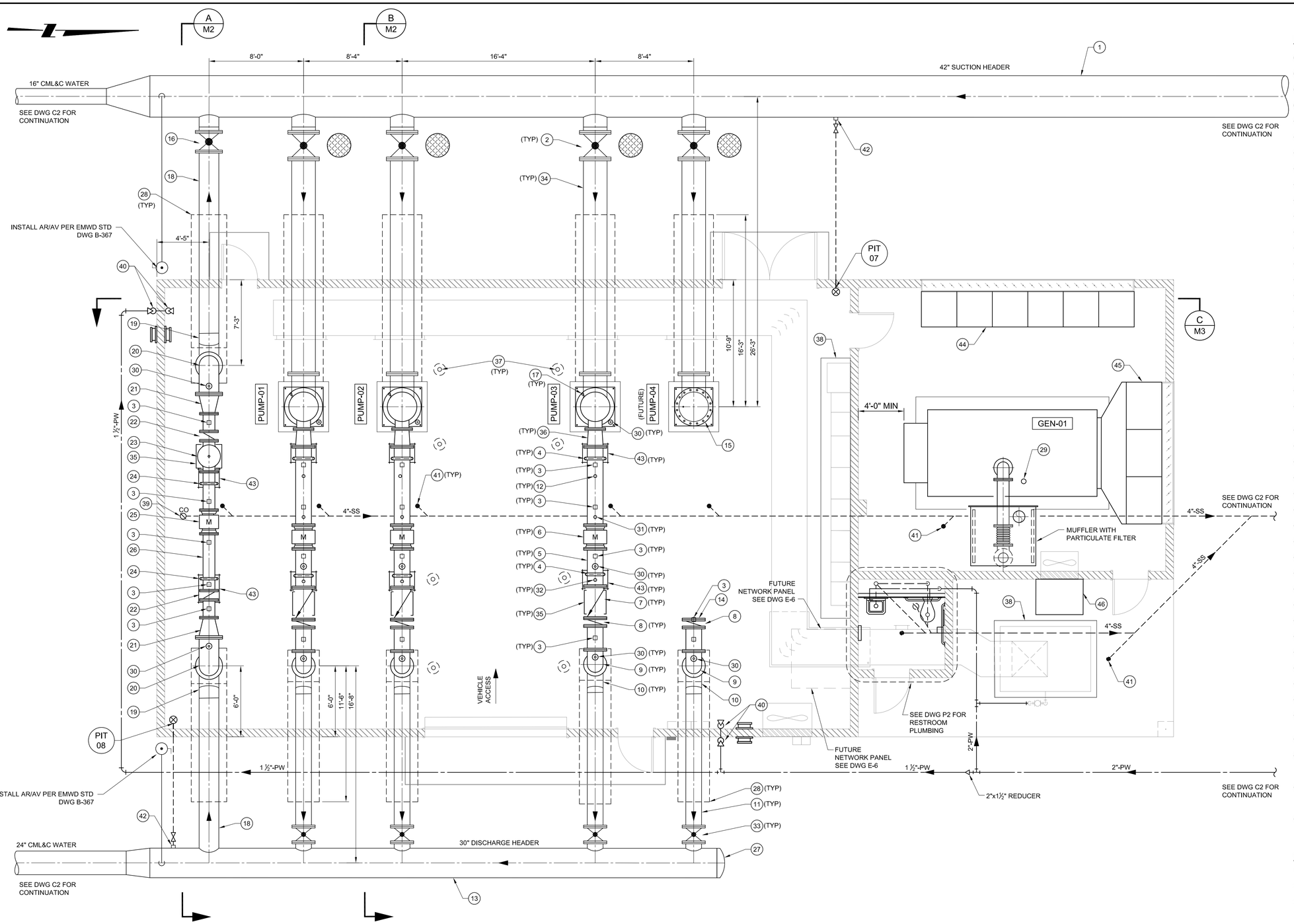
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

LETTERMAN BOOSTER STATION

CIVIL
YARD PIPING PLAN

I.D.	3
S.A.	41
W.O.	411361
C.O.	468721
COORD.	52D
SHT. 5 OF 69	
D-45029	
C2	

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KEY NOTES:

1. 42" CML&C STEEL PIPE PER SPECIFICATION SECTION 15061
2. 24" RESILIENT SEAT FLANGED GATE VALVE PER SPECIFICATION SECTION 15102
3. PIPE SUPPORT PER DETAIL 1, DWG M8
4. 16" STEEL GROOVED COUPLING PER SPECIFICATION SECTION 15077
5. 16" CML STEEL PIPE PER SPECIFICATION SECTION 15061
6. 16" MAGNETIC FLOW METER PER SPECIFICATION SECTION 13315
7. 16" FLANGED SWING CHECK VALVE PER SPECIFICATION SECTION 15111
8. 16" FLANGED BUTTERFLY VALVE PER SPECIFICATION SECTION 15103
9. 16" STEEL FLANGED 90° ELBOW PER SPECIFICATION SECTION 15061
10. 16" CML&C STEEL 5-PIECE WELDED 90° ELBOW PER SPECIFICATION SECTION 15061
11. 16" CML&C STEEL PIPE PER SPECIFICATION SECTION 15061
12. PRESSURE TRANSMITTER AND SWITCH PER DETAIL 1, DWG M4
13. 30" CML&C STEEL PIPE PER SPECIFICATION SECTION 15061
14. 16" STEEL BLIND FLANGE PER SPECIFICATION SECTION 15061
15. STEEL COVER PLATE PER DETAIL 3, DWG M5
16. 20" RESILIENT SEAT FLANGED GATE VALVE PER SPECIFICATION SECTION 15102
17. SUCTION PRESSURE SWITCH CONNECTION PER DETAIL 4, DWG M5
18. 20" CML&C STEEL PIPE PER SPECIFICATION SECTION 15061
19. 20" CML&C STEEL 5-PIECE WELDED 90° ELBOW PER SPECIFICATION SECTION 15601
20. 20" CML STEEL FLANGED 90° LONG RADIUS ELBOW PER SPECIFICATION SECTION 15061
21. 20" x 12" FLANGED STEEL ECCENTRIC REDUCER, F.O.T., PER SPECIFICATION SECTION 15061
22. 12" FLANGED BUTTERFLY VALVE PER SPECIFICATION SECTION 15103
23. 12" PRESSURE RELIEF VALVE, CLA-VAL MODEL 50-01 OR APPROVED EQUAL, PER SPECIFICATION SECTION 15120
24. 12" GROOVED STEEL COUPLING PER SPECIFICATION SECTION 15077
25. 12" MAGNETIC FLOW METER PER SPECIFICATION SECTION 13315
26. 12" CML STEEL PIPE PER SPECIFICATION SECTION 15061
27. 30" CML&C STEEL DISHHEAD PER SPECIFICATION SECTION 15061
28. CONCRETE PIPE ENCASEMENT PER DETAIL 4, DWG M7
29. GENERATOR FUEL FILL STATION
30. 1" AIR RELEASE VALVE PER DETAIL 2, DWG M4 AND GENERAL NOTE 3 (BELOW)
31. 1" TEST COCK PER DETAIL 9, DWG M7
32. SAMPLING TAP PER DETAIL 8, DWG M7
33. 16" RESILIENT SEAT FLANGED GATE VALVE PER SPECIFICATION SECTION 15102
34. 24" CML&C STEEL PIPE PER SPECIFICATION SECTION 15061
35. CONCRETE VALVE WEIGHT SUPPORT PER DETAIL 3, DWG M8
36. 16" x14" FLANGED STEEL CONCENTRIC REDUCER, PER SPECIFICATION SECTION 15061
37. REMOVABLE GUARD POST PER DETAIL 2, DWG C4
38. EQUIPMENT PAD PER STRUCTURAL, 4" HIGH MINIMUM
39. CLEANOUT PER DETAIL 5, DWG M8
40. WALL MOUNTED UTILITY STATION PER DETAIL 7, DWG M7
41. FLOOR DRAIN PER DETAIL 4, DWG M4
42. 1¼" CLASS 3000 HALF COUPLING WELDED TO PIPE PER EMWD STD DWG B-271 WITH 1" CORP STOP FOR CONNECTION OF ¾" PIPELINE TO PIT-07 AND PIT-08, SEE DWG E6
43. HARNESS GROOVED COUPLING PER DETAIL 6, DWG M4
44. AIR INTAKE SILENCERS. IAC QUIET-DUCT SILENCERS, MODEL 3LFS 36"x 48" OR EQUAL. PLACE ONE ROW OF 6 SILENCERS ALIGNED WITH BOTTOM OF ACOUSTICAL LOUVER EACH SILENCER IS 36" WIDE x 48" HIGH x 36" DEEP.
45. GENERATOR EXHAUST SILENCERS. IAC QUIET-DUCT SILENCERS, MODEL 3LFS 48"x 48" OR EQUAL. PLACE THREE ROWS OF 3 SILENCERS ALIGNED WITH ACOUSTICAL LOUVER EACH SILENCER IS 48" WIDE x 48" HIGH x 36" DEEP.
46. FAN INTAKE SILENCER. IAC QUIET-DUCT SILENCERS, MODEL 3LFS 48"x 48" OR EQUAL. PLACE ONE SILENCER ALIGNED WITH EACH FAN. SILENCER IS 48" WIDE x 48" HIGH x 36" DEEP.

GENERAL NOTES:

1. SEE DRAWING H2 FOR HVAC LAYOUT.
2. PAINT ALL EXPOSED PIPING IN BUILDING PER SPECIFICATION SECTION 09912.
3. ROUTE EQUIPMENT DRAIN LINES FROM AIR RELEASE VALVES, PUMP CANS AND PRESSURE RELIEF VALVE TO FLOOR DRAIN PER DETAIL 5, DWG M4.
4. SEE DRAWING E6 FOR ELECTRICAL PANEL LAYOUT.

MECHANICAL

PUMP STATION PLAN

SCALE: 1/4" = 1'-0"

EMWD 1860 HWL PZ SPEC NO. 1226W

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UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1·800·227·2600
TWO WORKING DAYS BEFORE YOU DIG

Brown AND Caldwell

REVISIONS

No.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	11-04-15	APK	AS CONSTRUCTED C.O. 468721		10-15-15

REGISTERED PROFESSIONAL ENGINEER JEFFREY J. ENGLEBY NO. C48237 CIVIL STATE OF CALIFORNIA

BC JOB NO. 142158

APPROVED BY:
Joe Mouawad 3-25-13
EMWD DIRECTOR OF ENGINEERING DATE

CITY OF MORENO VALLEY

REVIEWED BY:
Mark Sambito 3-27-13
CITY ENGINEER DATE

EASTERN MUNICIPAL WATER DISTRICT
Gregory J. Kowalski 3-25-13
PROJECT MANAGER DATE

APPROVALS	INITIAL	DATE
PROJECT ENG.	RR	3-19-13
INSPECTION	CW	3-22-13
WTR. OPERATIONS	KG	3-19-13
MAINTENANCE	MI	3-19-13

		DATE
DESIGNED	VCH	11/26/12
DRAWN	RMK	11/26/12
TRACED	N/A	N/A
CHECKED	JJE	11/26/12
SUBMITTED		11/26/12

SCALE: 1/4" = 1'-0"

EASTERN MUNICIPAL WATER DISTRICT

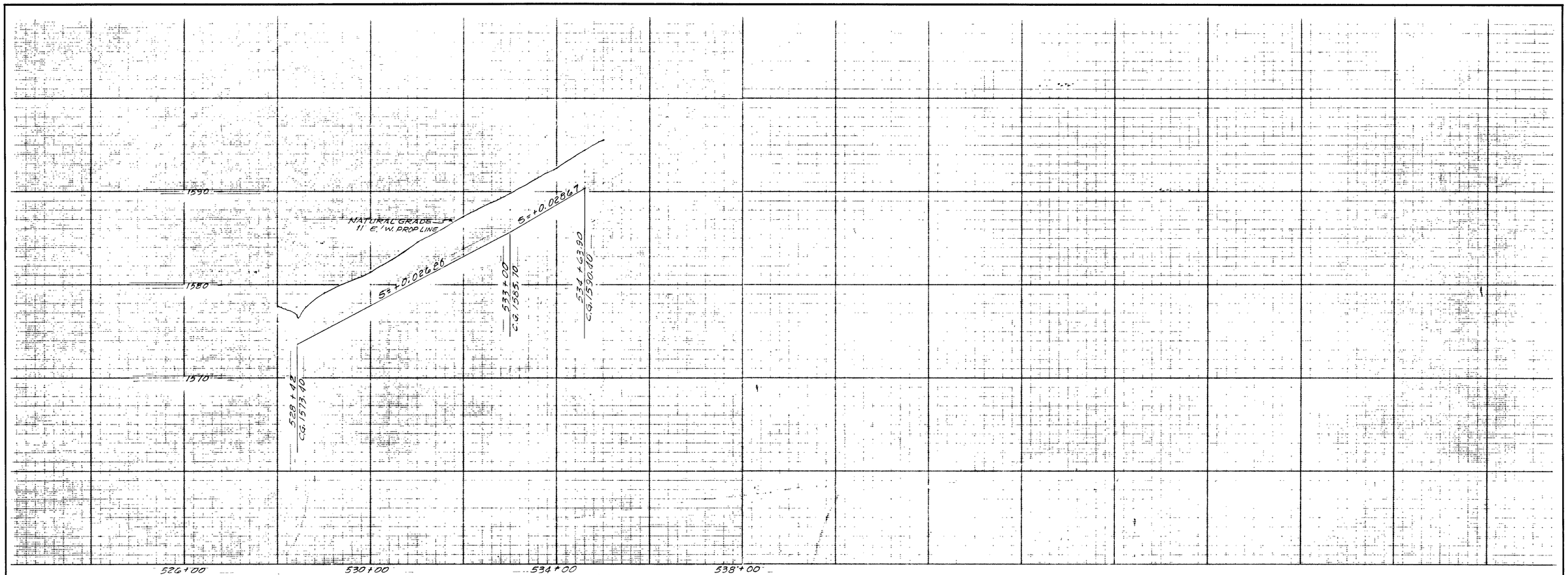
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

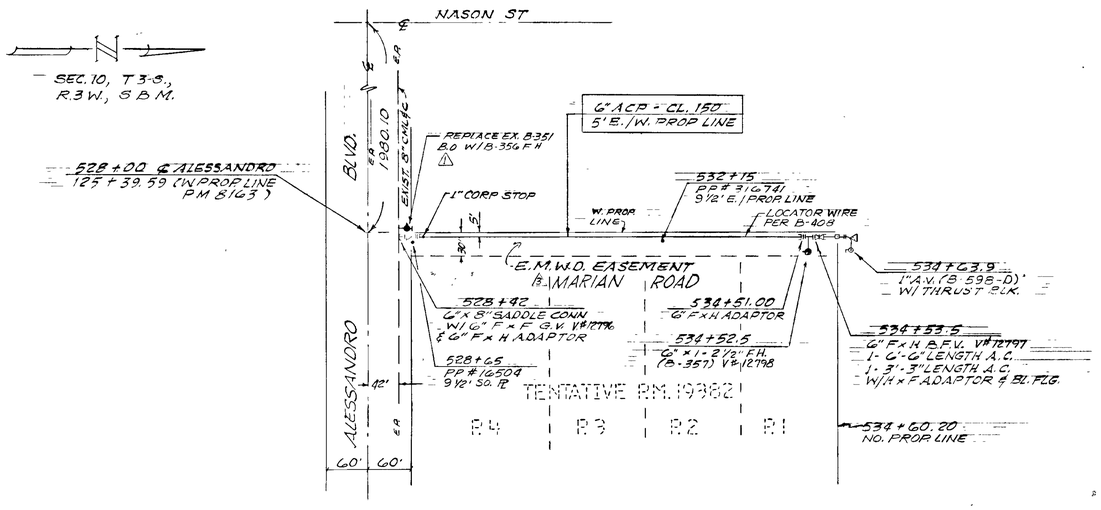
LETTERMAN BOOSTER STATION

MECHANICAL
PUMP STATION PLAN

I.D.	3
S.A.	41
W.O.	411361
C.O.	468721
COORD.	52D
SHT. 18 OF 69	
D-45042	
M1	

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B.M. - RIV. CO. No. M-40-4
RESET 1976 @ S.E. COR. NASON & ALESSANDRO BLVD.

RIV. CO. ENCH. PMT # 83-11-183 12-11-83 C.O. 18240 IMPROVEMENT DISTRICT NO. 3

REVISIONS					REFERENCES				SCALE HORIZ: 1"=100' VERT: 1"=50'	DATE
NO.	DATE	INITIAL	DESCRIPTION	APP'VD	D-999, D-3633, T-11, L-108				DESIGNED	
1	11-16-84	K.H.	REPLACE EX. B 351 W/ B-356 F.H. HEAD		P.M. 8163, BK 29, P. 2 -				DRAWN K.H.	12-20-83
2	1-28-85	S.K.D.	AS CONSTRUCTED C.O. 18240		TENT. P.M. 19382				TRACED	
3	10-10-85	W.W.	ADDED STREET NAME		R.S. 2191 REC. 1-9-86 # 4328				CHECKED	
					APPROVALS				SUBMITTED	
					DESIGN	CONSTRUCTION	OPERATIONS		RECOMMENDED	

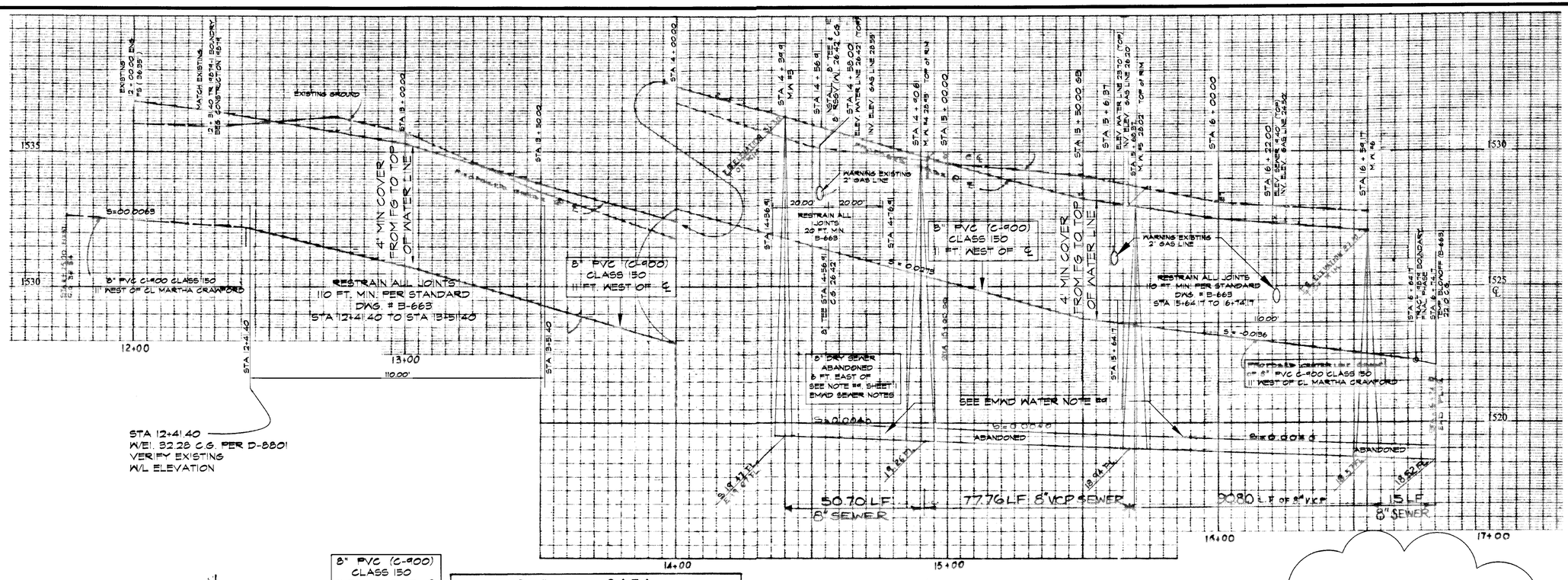
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

P.M. 8165
MARIAN ROAD
STA. 528+42 TO STA. 534+63.9

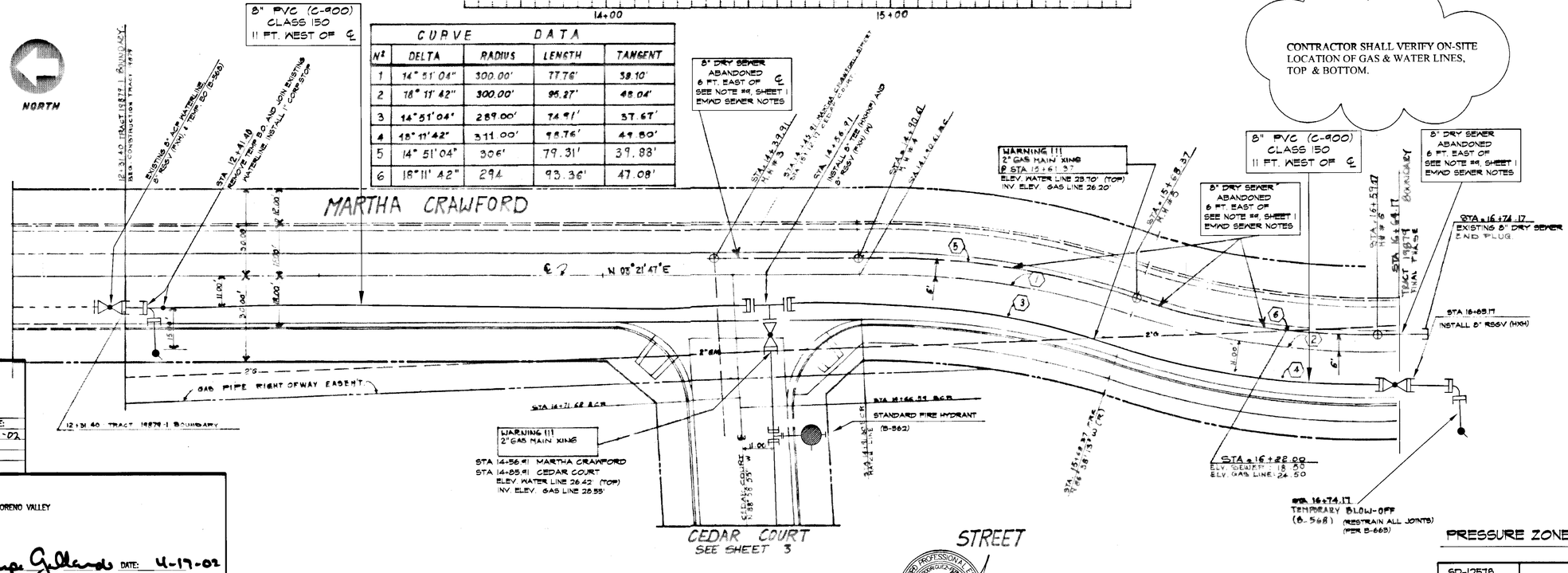
APPROVED _____ CHIEF ENGINEER D-6741

3

AS CONSTRUCTED 7-2



CURVE DATA				
N²	DELTA	RADIUS	LENGTH	TANGENT
1	14° 51' 04"	300.00'	77.76'	38.10'
2	18° 11' 42"	300.00'	95.27'	48.04'
3	14° 51' 04"	289.00'	74.91'	37.67'
4	18° 11' 42"	311.00'	98.76'	49.80'
5	14° 51' 04"	306'	79.31'	39.88'
6	18° 11' 42"	294	93.36'	47.08'



WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
BY: Vicky J. Gauch DATE: 3/26/02
CIVIL ENGINEER OF SUBDIVISIONS

APPROVAL	INITIAL:	DATE:
PROJECT ENGINEER	C.M	3-26-02
INSPECTION	—	—
WTR. OPERATIONS	—	—
SWR. OPERATIONS	—	—

Underground Service Alert
DIG BEFORE YOU DIG
Call: TOLL FREE 1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

APPROVED BY:
THE CITY OF MORENO VALLEY
BY: Lupe Gallardo DATE: 4-19-02

BENCHMARK: M-40-4 (RESET) RIV. NO. M.L. ELEVATION = 1588.42'
BRASS DISK IN CONCRETE, 56 FEET EAST AND 48 FEET SOUTH OF CENTERLINE INTERSECTION OF NASSON STREET AND ALESSANDRO BOULEVARD, BRASS DISK, (M-40-4 RESET) ELEVATION 1588.42'

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER COUNTY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE COUNTY

RECOMMENDED FOR APPROVAL
DATE
CHECKED BY
DATE

DATE	BY	MARK	REVISIONS	APPR.	DATE
5-25-04	JES	1	AS COAST CO 6-4681 CR 6-13-03		5-25-04

ENGINEER DISTRICT
DESIGN BY: DRAWN BY: CHECKED BY

1 EMWD INSPECTOR EDDIE VALENZUELA

APPROVED BY: DATE: 5/16/02
TRENT D. PULLIAM CITY ENGINEER
R.C.E. NO. 20517 EXPIRATION DATE: 9/30/05

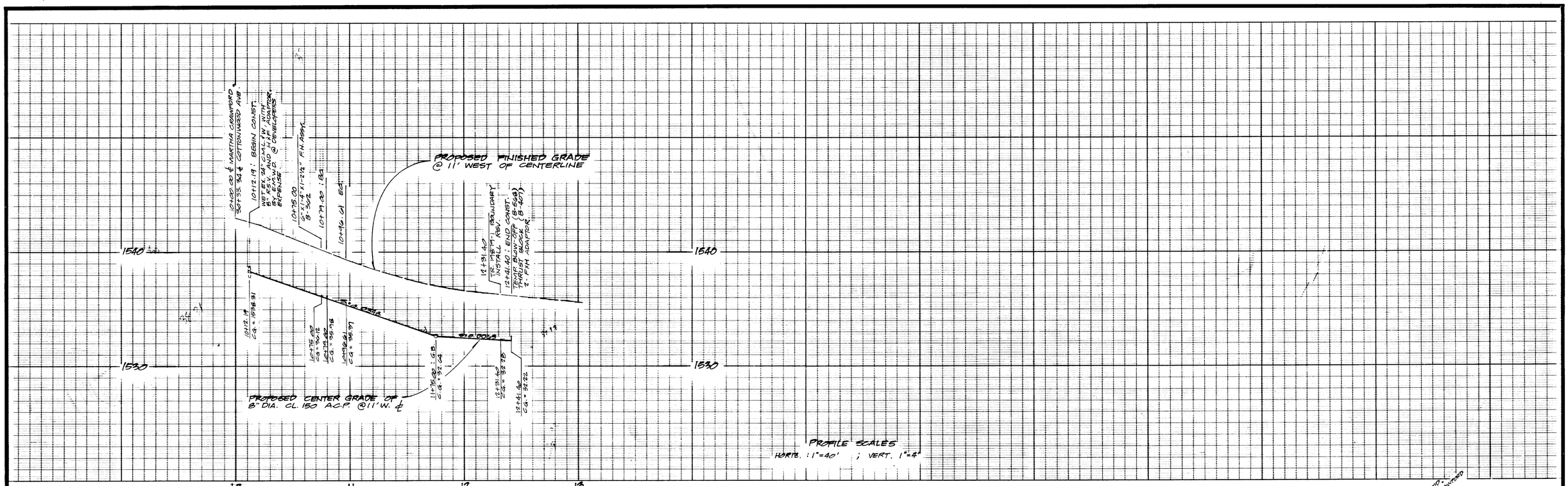
REGISTERED PROFESSIONAL ENGINEER — VICTOR RODRIGUEZ-FERNANDEZ — No. 55575 — 9-30-2003 — CIVIL — STATE OF CALIFORNIA

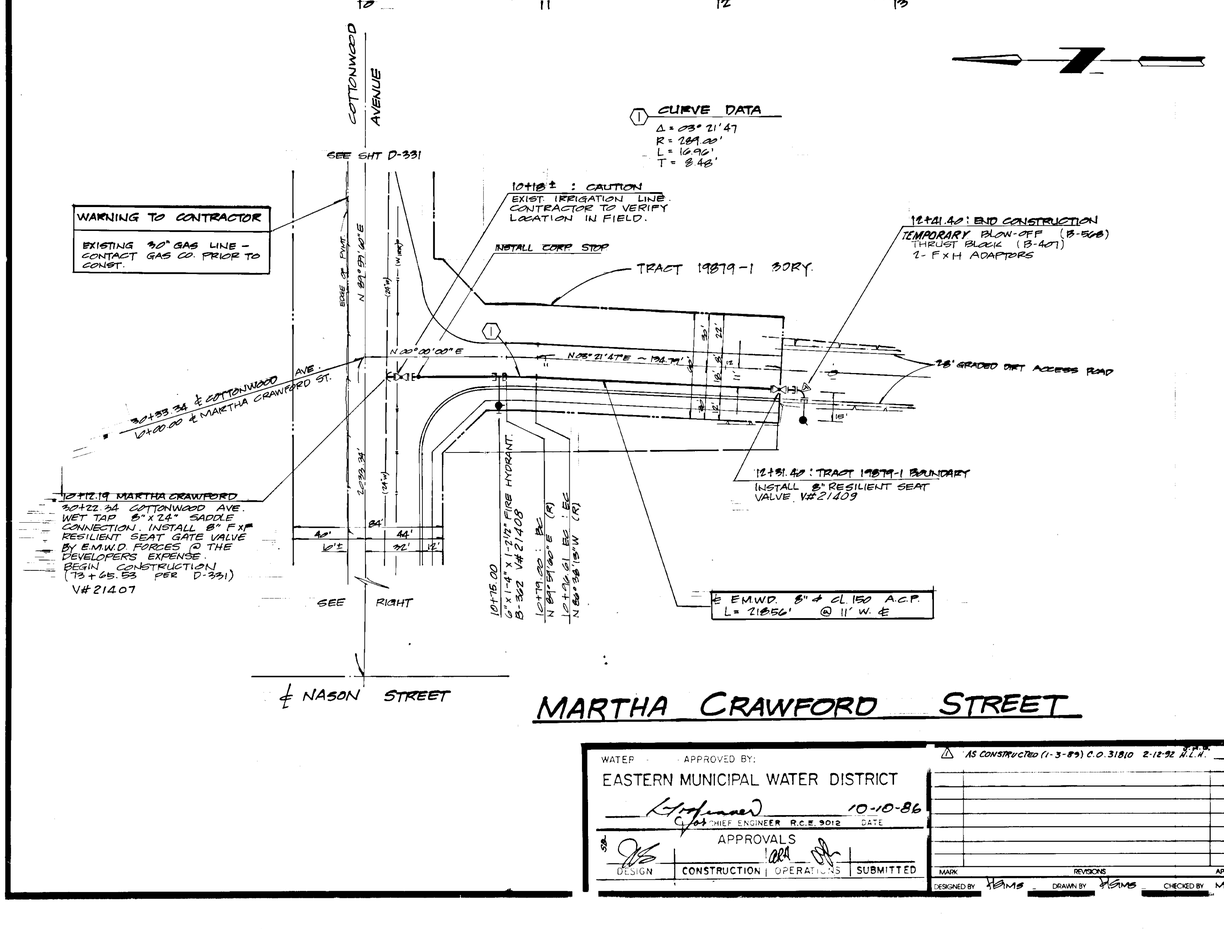
AGUIRRE & ASSOCIATES
BUILDING DESIGNERS
2222 KANSAS AVE. SUITE D
RIVERSIDE, CA. 92507 (909) 684-4222

PREPARED BY: R.C.E. NO. 55575
VICTOR RODRIGUEZ-FERNANDEZ RCE DATE: 09/21/02

CITY OF MORENO VALLEY
TR-19879 - CEDAR COURT & MARTHA CRAWFORD STREET WATER IMPROVEMENT TITLE AND INDEX SHEETS
HORIZ. SCALE: 1"=20' VERT. SCALE: 1"=2'

SD-12578	
I.D.	3
S.A.	41 & 32
W.O.	99-916
C.O.	6468 1
COORD.	61-C-52
	SHEET 2 OF 3
FILE NO.	D-11216





MARTHA CRAWFORD STREET

WATER MAIN APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
10-10-86
CHIEF ENGINEER R.C.E. 9012 DATE
APPROVALS
DESIGN | CONSTRUCTION | OPERATIONS | SUBMITTED

⚠ AS CONSTRUCTED (1-3-89) C.O. 31810 2-12-92 R.L.H.

MAIN REVISIONS APP DATE

DESIGNED BY HSIMS DRAWN BY HSIMS CHECKED BY M.M.

PREPARED UNDER THE DIRECTION OF John W. Canty
REGISTERED CIVIL ENGINEER NO. 17550
EXPIRATION DATE 6/30/89 DATE 9/12/88

APPROVED BY: David E. Hedlund
CITY OF MORENO VALLEY CITY ENGINEER
DATE 1/5/87

REGISTERED PROFESSIONAL ENGINEER JOHN W. CANTY No. 17550 Civil STATE OF CALIFORNIA

J F DAVIDSON ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS • PLANNERS
P.O. BOX 493, RIVERSIDE, CA 92502 (714) 686-0844
11200 SO. MT. VERNON AVE. #D, COLTON, CA 92324 (714) 825-1082
73-080 EL PASEO, #103, PALM DESERT, CA 92260 (619) 346-5691

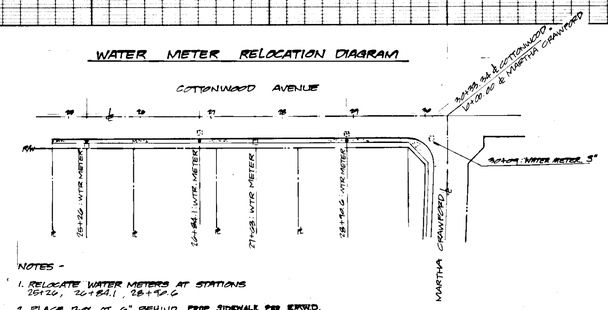
SCALE HORIZ: 1" = 40' VERT: 1" = 4'
DATE JULY 1986
BENCH MARK: SEE SHEET ONE of TWO

C.O. 31810
W.O. 87-212, IMPROVEMENT DISTRICT 3 D-8801
IN THE CITY OF MORENO VALLEY
WATER PLAN AND PROFILE
FOR
TRACT 19879-1
MARTHA CRAWFORD STREET
STA. 10+12.19 TO STA. 12+41.40
FOR
WO F.B. FILE NO. 85-8471

2 OF 2 SHEETS

COORD. 7-I

WATER METER RELOCATION DIAGRAM

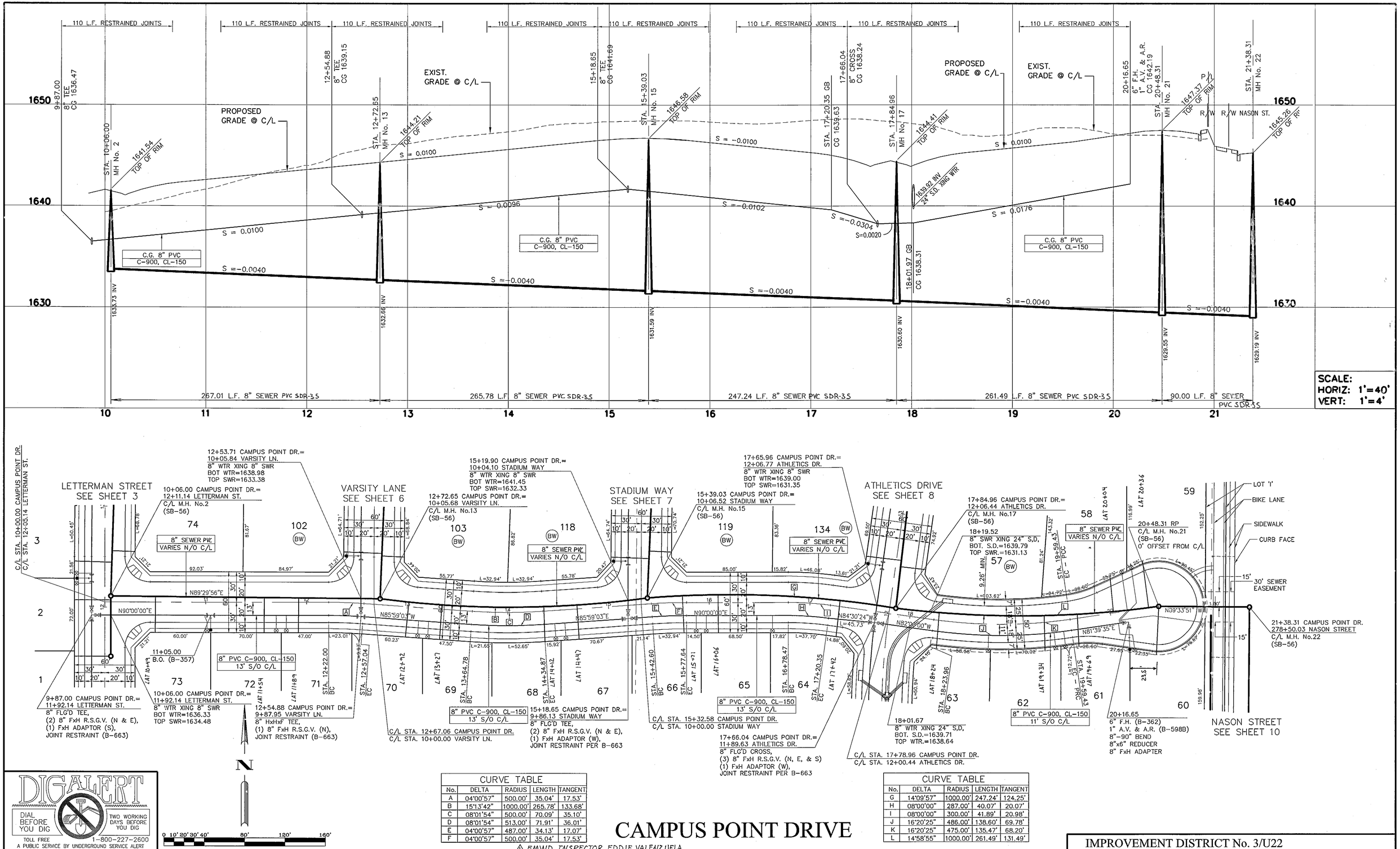


NOTES -
1. RELOCATE WATER METERS AT STATIONS 25+26, 27+63.1, 28+56.6
2. PLACE BOX AT 6" BEHIND PROP. SIDEWALK PER EMWD STD. DWG. NO. B-590. ADJUST TO PROPOSED GRADES.
3. WTR. METER @ STA. 27+63 : ADJUST TO GRADE ONLY.
4. ALL WORK TO BE PERFORMED BY EMWD FORCES @ THE DEVELOPERS EXPENSE.
5. ABANDON SERVICE AND SALVAGE 3" METER AT STA. 30+09.
6. ABANDON SERVICE COMM. AND INSTALL NEW SERVICE COMM. PER B-590 TYPE C AT STA. 25+26, 27+63

RIVERSIDE COUNTY HEALTH DEPARTMENT

✓ WATER LINE LAYOUT

THIS TO CERTIFY THAT RIVERSIDE COUNTY DEPARTMENT APPROVES THE DESIGN OF THE ITEM CHECKED.
DATE: 11.4.86 BY: John L. Ortiz



CURVE TABLE				
No.	DELTA	RADIUS	LENGTH	TANGENT
A	04°00'57"	500.00'	35.04'	17.53'
B	15°13'42"	1000.00'	265.78'	133.68'
C	08°01'54"	500.00'	70.09'	35.10'
D	08°01'54"	513.00'	71.91'	36.01'
E	04°00'57"	487.00'	34.13'	17.07'
F	04°00'57"	500.00'	35.04'	17.53'

CURVE TABLE				
No.	DELTA	RADIUS	LENGTH	TANGENT
G	14°09'57"	1000.00'	247.24'	124.25'
H	08°00'00"	287.00'	40.07'	20.07'
I	08°00'00"	300.00'	41.89'	20.98'
J	16°20'25"	486.00'	138.60'	69.78'
K	16°20'25"	475.00'	135.47'	68.20'
L	14°58'55"	1000.00'	261.49'	131.49'

DIGALERT — DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG — TOLL FREE 1-800-227-2600 — A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

CAMPUS POINT DRIVE

EMWD INSPECTOR EDDIE VALENZUELA

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Vicki J. Barnes 3/3/03
CIVIL ENGINEER OF SUBDIVISIONS — DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M.	2-26-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-22-06	RE	AS CONST CO 65074/75 [CR 2-9-06]	3-22-06

APPROVED BY: DATE: 3/25/03
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

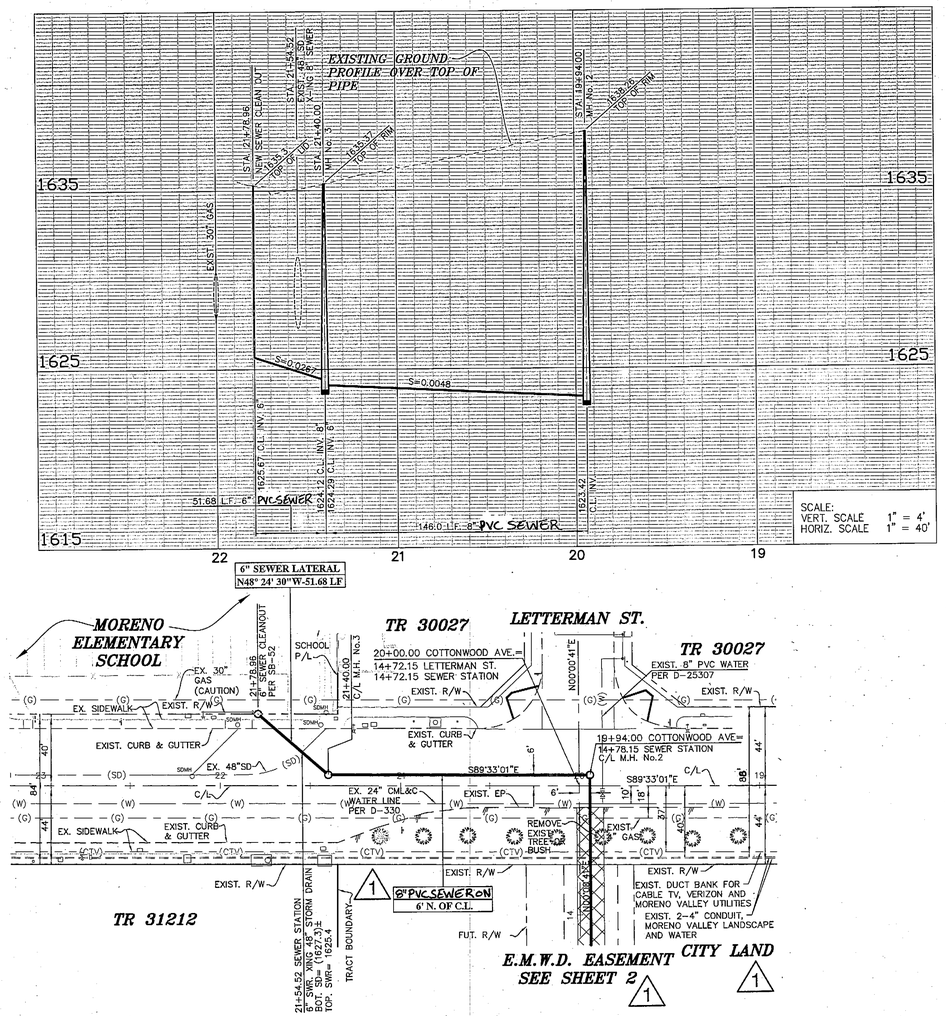
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN — RCE 43886 — 2-19-03 — DATE
SCALE 1"=40'

IMPROVEMENT DISTRICT No. 3/U22

CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
CAMPUS POINT DRIVE

S.A.	41/32
W.O.	10-189
C.O.	65074-75
COORD.	61C-52
SHT.	9 OF 12
D-	253/3



NOTE

ALL THE ELEVATIONS SHOWN ON THIS PLAN FOR ALL EXISTING UTILITIES ARE BASED ON RECORD DRAWINGS AND POTHOLE INFORMATION.

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.
Underground Service Alert
Call: TOLL FREE
1-800
227-2600
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

RIVERSIDE COUNTY BENCHMARK :

A BRASS DISK SET IN TOP OF CONCRETE POST STAMPED M-40-4, RESET 1976 AT THE SOUTH CORNER OF NASON STREET AND ALESSANDRO BLVD; 56.0 FEET EAST OF CENTERLINE OF NASON STREET; 48 FEET SOUTH OF ALESSANDRO BLVD; 3' WEST OF TP #GT - 70306, 1.0 FEET NORTH OF A 4" X 4" MARKER POST

ELEV. 1588.42 FEET
VERTICAL DATUM: NGVD 29

SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 10/04/11

APPROVALS

	INITIAL	DATE
PROJECT ENGINEER	L.A.M.	10/04/11

MARK	DATE	INITIAL	DESCRIPTION	APPR	DATE
1	9/13/11	T.J.	SUPERSEDED APPROVED PLANS DATED 5/19/11 REVISED NOTES	SMM	10/04/11
2	6/18/12	MS	AS CONST C068437 (CR 6/11/12)	PKN	6/14/12
		E.O.R.	REVISION		

CITY OF MORENO VALLEY
APPROVALS
PREM KUMAR — DEPT. OF PW DIR. / ASST. CITY ENGINEER — R.C.E. #C52463 — 10/20/11 DATE
CHRIS A. VOGT — PUBLIC WORKS DIRECTOR/CITY ENGINEER — R.C.E. #C44250 — 10/24/11 DATE

REGISTERED PROFESSIONAL ENGINEER — JOHN T. NGUYEN — No. C 59022 — Exp. 6-30-13 — CIVIL — STATE OF CALIFORNIA

JTN 1708

JT ENGINEERING
ENGINEERING ⊂ TECHNOLOGY
Civil/Structural Engineering • Planning • Land Surveying
33336 N. Agua Dulce Cyn. Rd. #103, Agua Dulce, CA 91390
Phone (661) 268-9899 Fax (661) 268-1936
www.jtengineering.com

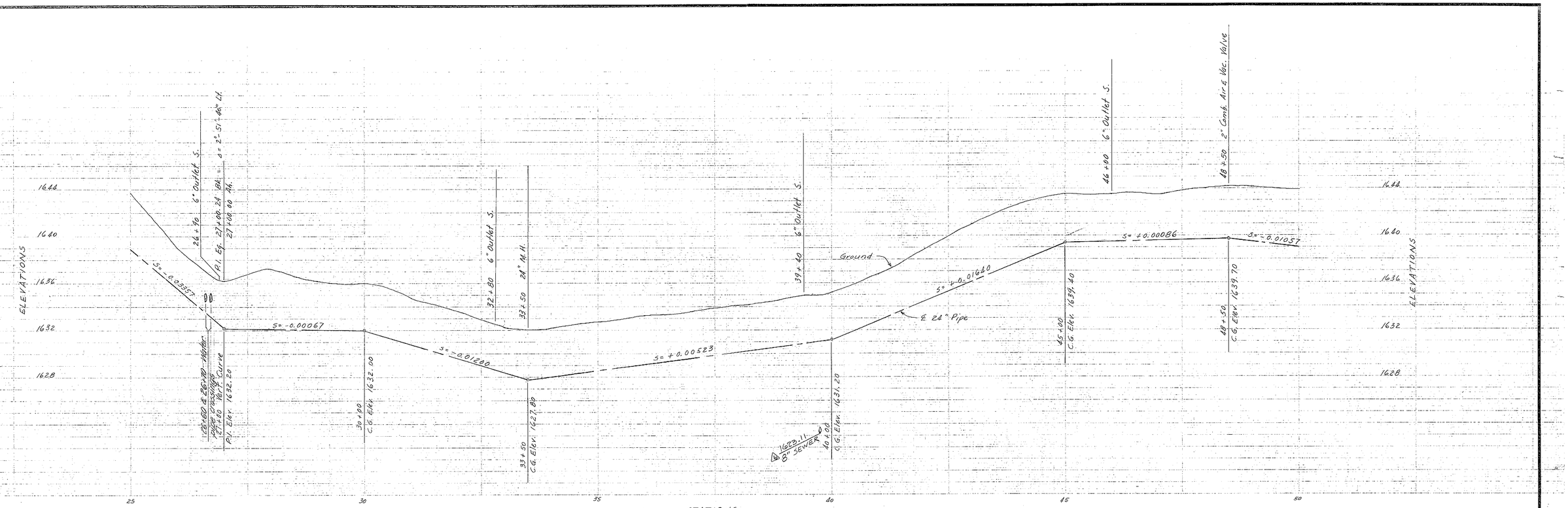
CITY OF MORENO VALLEY

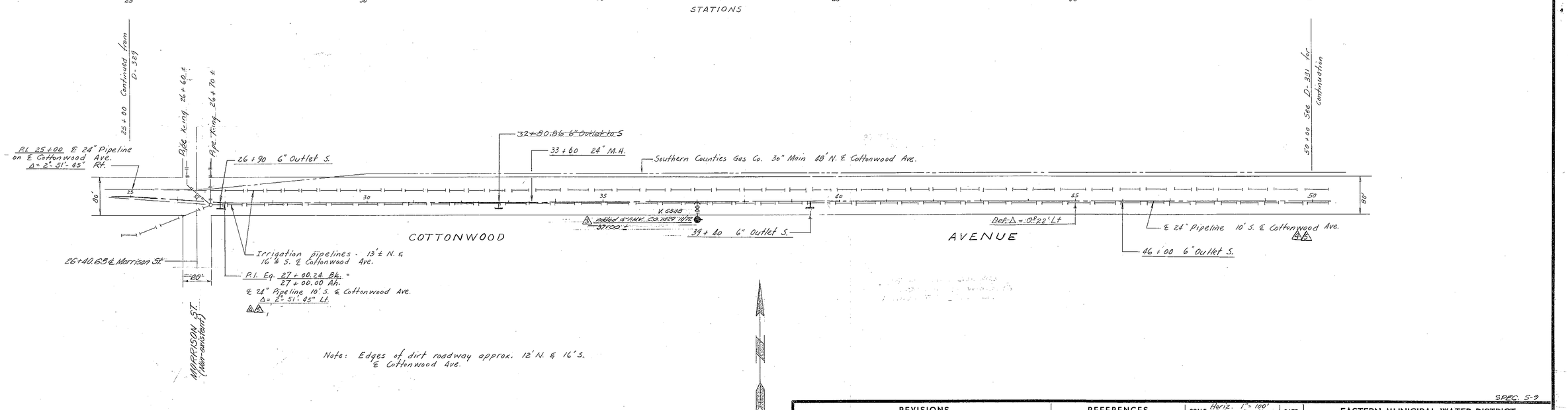
MORENO ELEMENTARY SCHOOL
OFFSITE SEWER IMPROVEMENT PLANS
PLAN AND PROFILE

I.D.	19
S.A.	32
W.O.	12-914
C.O.	GB437
COORD.	61C-52
SHEET	3 OF 3
	D-42680
CITY FILE NO.	

2

8



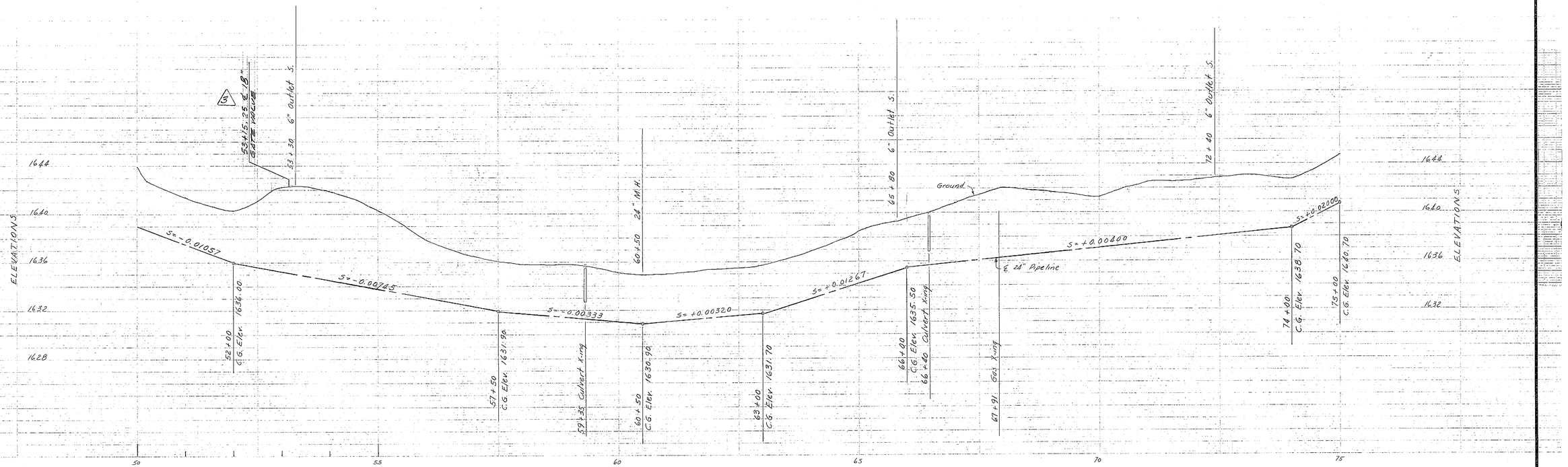


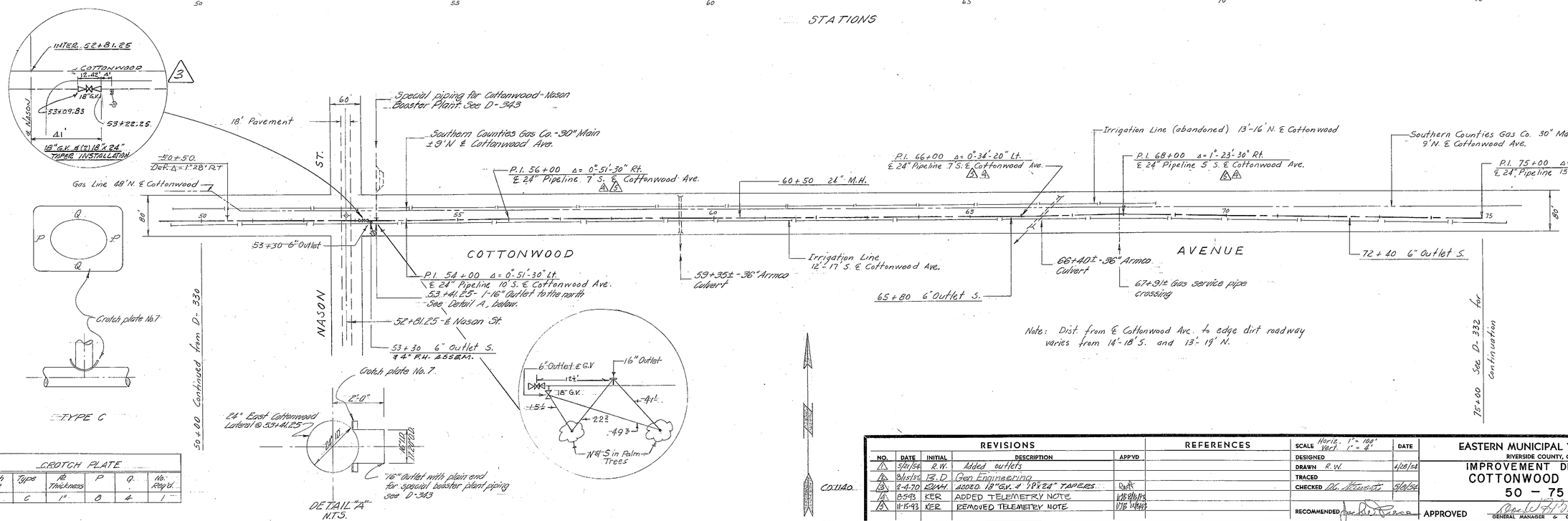
SPEC. S-9

REVISIONS					REFERENCES			EASTERN MUNICIPAL WATER DISTRICT
NO.	DATE	INITIAL	DESCRIPTION	APP'D		SCALE Horiz. 1"=100' Vert. 1"=4'	DATE	RIVERSIDE COUNTY, CALIFORNIA
1	5/21/54	R.W.	Added outlets			DESIGNED		IMPROVEMENT DISTRICT NO. 3
2	8/15/56	B.D.	Gen Engineering			DRAWN R.W.	4/28/54	COTTONWOOD AVE. EAST
3	11/29/72	C.H.S.	Added 6" P.M.V. CO. 1828	[illegible]		TRACED		25 - 50
4	8-5-93	KER	ADDED TELEMETRY NOTE	KER 8/19/93		CHECKED D.C. Stewart	6/24/54	
5	11-15-93	KER	REMOVED TELEMETRY NOTE	KER 11/16/93		RECOMMENDED [signature]		APPROVED [signature] GENERAL MANAGER & CHIEF ENGINEER NO. D-330

COORD. 7-1

5





CROTCH PLATE					
Crotch Plate	Type	℄ Thickness	P	Q	No. Req'd.
7	C	1"	8	4	1

CO.1140

SPEC. 5-9


REVISIONS				
NO.	DATE	INITIAL	DESCRIPTION	APP'D
1	5/21/54	R.W.	Added outlets	
2	8/15/56	B.D.	Gen Engineering	
3	2-4-70	KDMH	ADDED 18"GV. & 18"x24" TAPERS.	
4	8-5-93	KER	ADDED TELEMETRY NOTE	
5	11-15-93	KER	REMOVED TELEMETRY NOTE	


REFERENCES

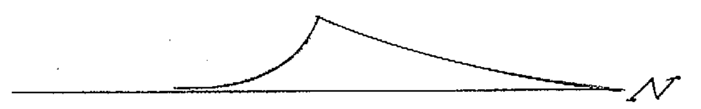
SCALE Horiz. 1" = 100' Vert. 1" = 4'	DATE
DESIGNED	
DRAWN R.W.	4/28/54
TRACED	
CHECKED	5/6/54
RECOMMENDED	
APPROVED GENERAL MANAGER & CHIEF ENGINEER	

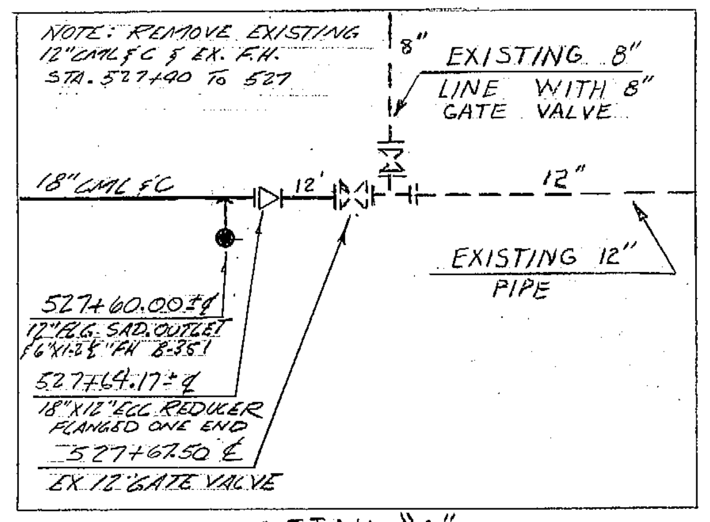
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA
IMPROVEMENT DISTRICT NO. 3
COTTONWOOD AVE. EAST
50 – 75
NO. D-331

COORD 7-I









DETAIL "A"

W.O. 72-156 C.O. 1596

Notes

1. No S.C.E. Facilities Exist, Or Proposed At This Time. 5-22-73
2. No Gen. Tel. Facilities Exist, Or Proposed At This Time. 6-22-73

REVISIONS

NO.	DATE	INITIAL	DESCRIPTION	APP'VD
1	5-23-73	C.H.S.	Added S.C.E. Note.	
2	6-22-73	C.H.S.	Added Gen. Tel. Note.	
3	12-11-73	JED	CHANGE PUMP. PLANT TO S.E. CORNER	
4	1-24-74	JED	LOWER PIPE AT INTERSECTION OF CACTUS	
5	4-29-74	C.H.S.	As Constructed	
6	10/24/03	CHS	ADDED 2 SUPER FH'S PER CO'S 65294 & 65295	VJB 10/24/13
7	8/6/14	MS	ADDED 1 SUPER FH AT STA 502+62 PER FIELD VERIFY	

REFERENCES
LID. 10-2 PG. 42, 43
TID. 10-1 PG. 30-57

APPROVALS

DESIGN	CONSTRUCTION	OPERATIONS

SCALE HORIZONTAL 1"=100' VERTICAL 1"=4'

DATE

DESIGNED

DRAWN K. COZAD

TRACED

CHECKED

SUBMITTED

RECOMMENDED

EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

IMPROVEMENT DISTRICT NO. 3
NASON ST: CACTUS TO ALESSANDRO ST.
STA. 501+60 TO 528+00

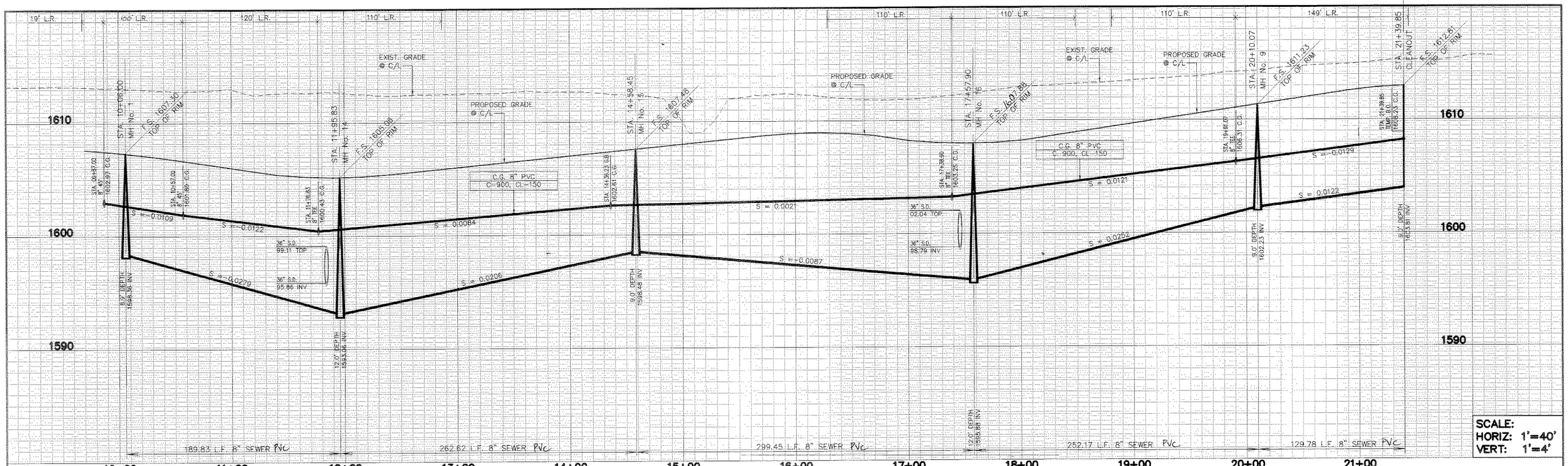
APPROVED
GENERAL MANAGER & CHIEF ENGINEER

D-3458

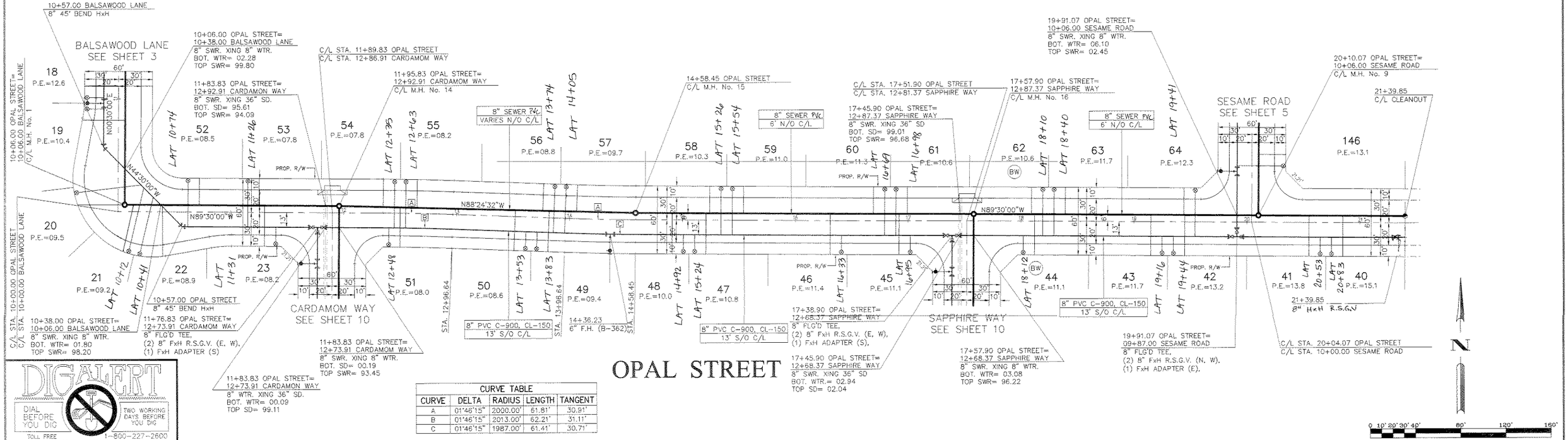
7

AS CONSTRUCTED

COORD. 8-I



SCALE:
HORIZ: 1"=40'
VERT: 1"=4'



OPAL STREET

CURVE TABLE				
CURVE	DELTA	RADIUS	LENGTH	TANGENT
A	01°46'15"	2000.00'	61.81'	30.91'
B	01°46'15"	2013.00'	62.21'	31.11'
C	01°46'15"	1987.00'	61.41'	30.71'

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER / SEWER / RECLAIMED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Vinita J. Bansotia
CIVIL ENGINEER OF SUBDIVISIONS — DATE 9/28/04

APPROVALS	INITIAL	DATE
PROJECT ENG.	JDT	9-23-04
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	11/24/04	EM	AS CONST 00 66082/83/84 FOR	T

APPROVED BY: TRENT D. PULLIAM, CITY OF MORENO VALLEY — DATE: 12/27/04
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
CHECK BY:
DATE:
DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA
SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

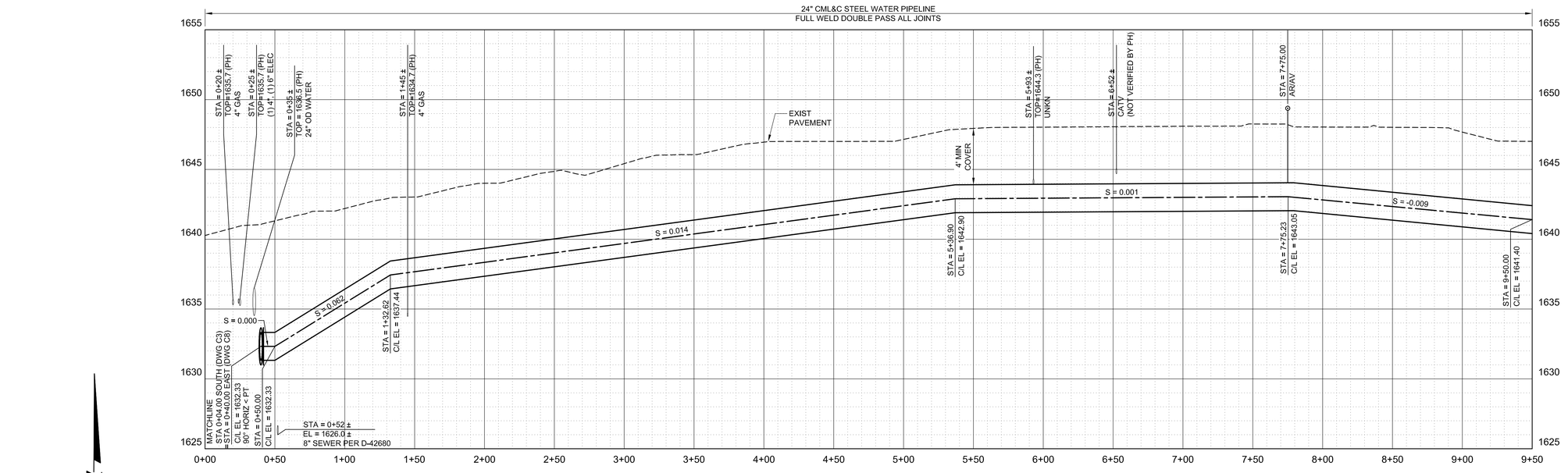
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN — RCE 43886 — DATE 9-16-04
SCALE 1"=40'

CITY OF MORENO VALLEY

TRACT No. 31212
SEWER, WATER, & RECLAIMED WATER
PLAN & PROFILE
OPAL STREET

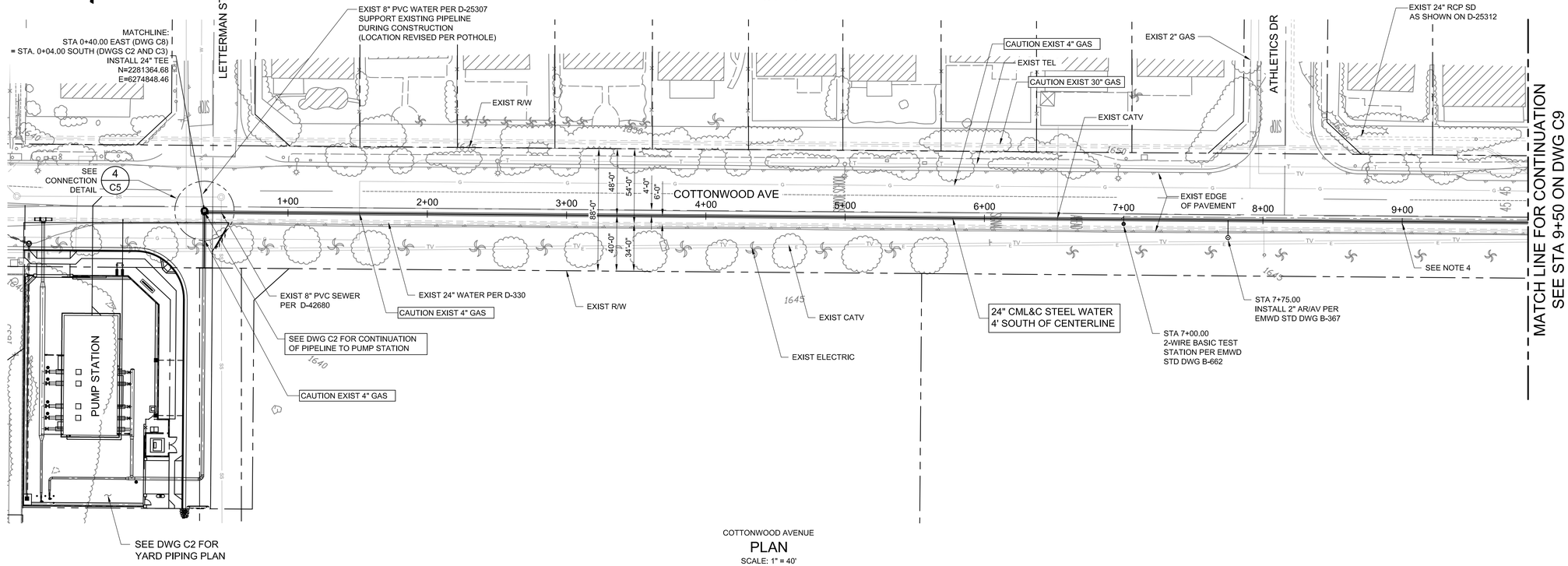
I.D. # 3 & U-22
S.A. 42/32
W.O. 10650
C.O. 66082/83/84
COORD. 61-C-52
SHT. 9 OF 14
D- 29466

J:\ECT\MPH\31212\SWR\SW9.dwg Wed Sep 15 17:31:25 2004 CaD



PROFILE

SCALE H: 1" = 40'
V: 1" = 4'



COTTONWOOD AVENUE

PLAN

SCALE: 1" = 40'

NOTES:

1. TRENCH BACKFILL PER EMWD STD DWG B-286B. ALL TRENCH SURFACE REPAIRS IN EXISTING ROAD SHALL BE IN ACCORDANCE WITH CITY OF MORENO VALLEY STD DWGS 602B (NO EXISTING CURB ON SOUTH SIDE OF COTTONWOOD WITHIN LIMITS OF NEW PIPELINE) AND 602C.
2. UNLESS OTHERWISE NOTED AS PREVIOUSLY POTHOLED (PH), ALL ELEVATIONS SHOWN ON THE PROFILE FOR EXISTING UTILITIES ARE BASED ON A SEARCH OF THE AVAILABLE RECORD INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
3. ALL EXISTING UTILITIES AS SHOWN ON THE PLAN ARE APPROXIMATE BASED ON A SEARCH OF THE AVAILABLE RECORD INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
4. ALIGNMENT SHIFTS UP TO 5-FT TOWARD COTTONWOOD AVENUE CENTERLINE BETWEEN STATIONS 7+00 TO 11+00 TO ACHIEVE SEPARATION FROM EXISTING UTILITIES.

EMWD 1860 HWL PZ

SPEC NO. 1226W

CALL BEFORE YOU DIG!
UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1·800·227·2600
TWO WORKING DAYS BEFORE YOU DIG

Brown AND Caldwell

REVISIONS

No.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	11-04-15	APK	AS CONSTRUCTED C.O. 468721		10-15-15

REGISTERED PROFESSIONAL ENGINEER JEFFREY J. ENGERBY NO. C48237 CIVIL STATE OF CALIFORNIA

BC JOB NO. 142158

APPROVED BY:
Joe Mouawad 3-25-13
EMWD DIRECTOR OF ENGINEERING DATE

CITY OF MORENO VALLEY

REVIEWED BY:
Mark Sambito 3-27-13
CITY ENGINEER DATE

EASTERN MUNICIPAL WATER DISTRICT

Gregory J. Kowalski 3-25-13
PROJECT MANAGER DATE

APPROVALS	INITIAL	DATE
PROJECT ENG.	RR	3-19-13
INSPECTION	CW	3-22-13
WTR. OPERATIONS	KG	3-19-13
MAINTENANCE	MI	3-19-13

		DATE
DESIGNED	VCH	11/26/12
DRAWN	RMK	11/26/12
TRACED	N/A	N/A
CHECKED	JJE	11/26/12
SUBMITTED		11/26/12

SCALE: AS SHOWN

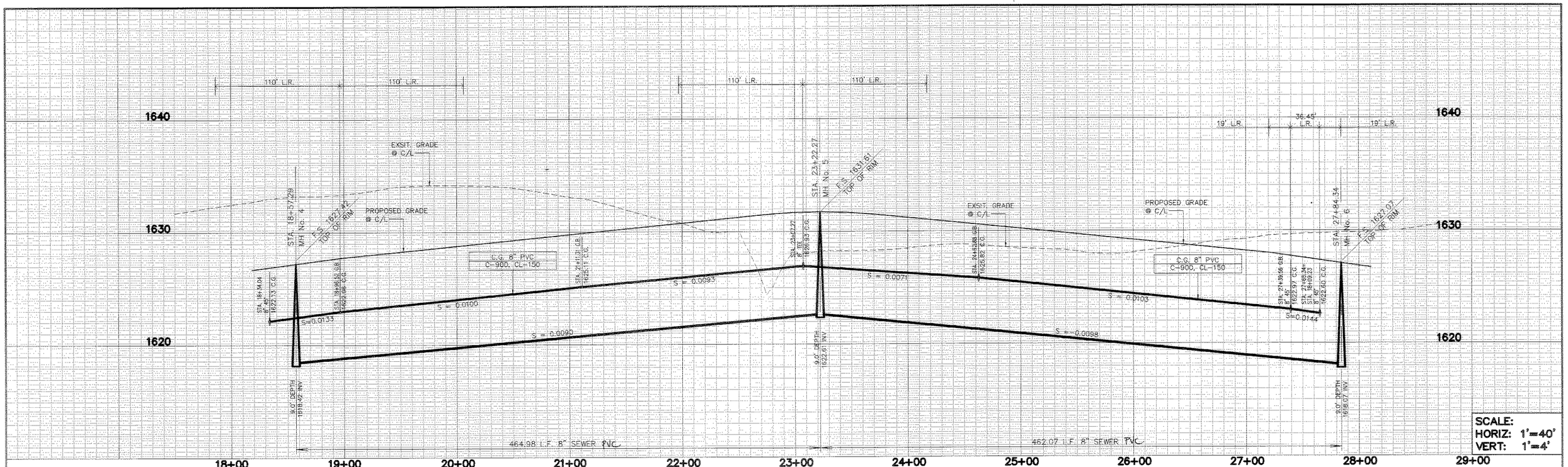
EASTERN MUNICIPAL WATER DISTRICT

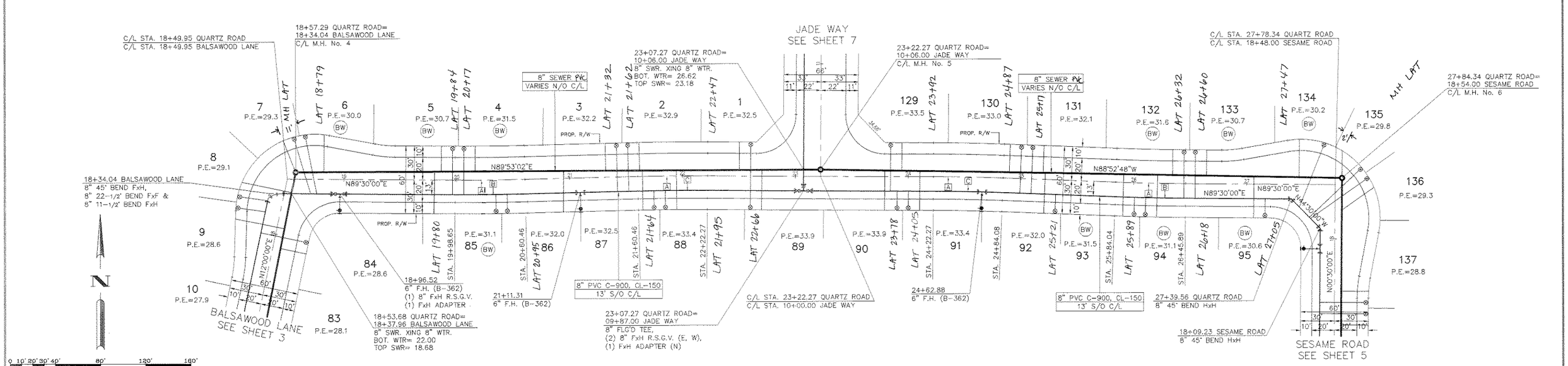
EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

LETTERMAN BOOSTER STATION
CIVIL
PIPELINE PLAN AND PROFILE
STA 0+00 TO STA 9+50

I.D.	3
S.A.	41
W.O.	411361
C.O.	468721
COORD.	52D
SHT. 11 OF 69	
D-45035	
C8	

Path: P:\Projects\Eastern MWD\1t2758 - Letterman Pump Station\CAD\12-SHEETS\03-CIVIL Filename: 1t2758-C08.dwg Plot Date: December 15, 2015 - 10:30 AM CADD User: Kulrys Rasa





QUARTZ ROAD

CURVE TABLE				
CURVE	DELTA	RADIUS	LENGTH	TANGENT
A	01°46'15"	2000.00'	61.81'	30.91'
B	01°46'15"	2013.00'	62.21'	31.11'
C	01°46'15"	1987.00'	61.41'	30.71'

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DIAL BEFORE YOU DIG
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TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER / SEWER / RECLAIMED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 9/27/09

APPROVALS	INITIAL	DATE
PROJECT ENG.	JAT	9.23.04
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	11/24/08	EM	AS CONST CO 66082/83/84 LCR	

APPROVED BY: DATE: 10/27/04
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

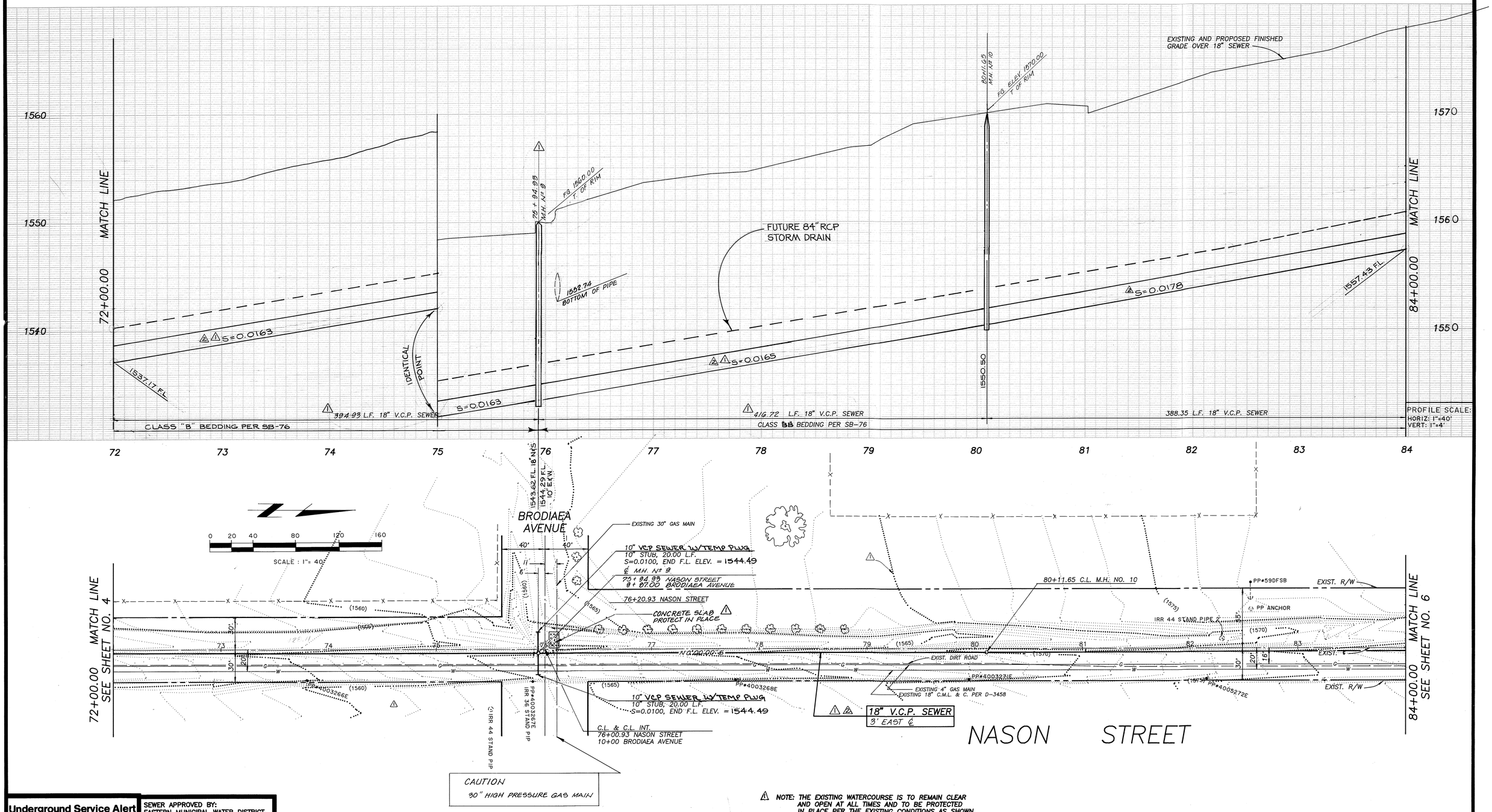
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 DATE 9-16-04
SCALE 1"=40'

CITY OF MORENO VALLEY

TRACT No. 31212
SEWER, WATER, & RECLAIMED WATER
PLAN & PROFILE
QUARTZ ROAD

I.D. # 3 & U-22
S.A. 42/32
W.O. 10650
C.O. 66082/83/84
COORD. 61-C-52
SHT. 4 OF 14
D- 29461

H:\PROJECTS\MPHB\31212\SWR-SW-1.dwg Wed Sep 15 17:28:02 2004 CaD



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TWO WORKING DAYS BEFORE YOU DIG

SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Keith J. Bartz 6/6/91
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	BR	6-11-91	SEWER OPER.		
PLANNING			CONST.		
WATER OPER.			DESIGN		

NOTE: THE EXISTING WATERCOURSE IS TO REMAIN CLEAR AND OPEN AT ALL TIMES AND TO BE PROTECTED IN PLACE PER THE EXISTING CONDITIONS AS SHOWN ON THESE PLANS. TRENCH SPOIL AND ALL EQUIPMENT IS SPECIFICALLY NOT ALLOWED TO BE STORED WITHIN THE EARTHEN CHANNEL BETWEEN OCTOBER 15 AND APRIL 15.

ID #U-22

Winchester Associates, Inc.
ENGINEERING • LAND SURVEYING
23640 TOWER STREET SUITE 3
MORENO VALLEY, CA. 92388 714-924-5425

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after county approval or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for approval by the county.

DATE	BY	MARK	REVISIONS	APPR.	DATE
12-1-91		1	ADDED TOPOGRAPHIC FEATURES AND WATERCOURSE NOTE		
			CHANGED ALIGNMENT: HORIZ. 72+00 TO 84+00; VERT. 72+00 TO MH 10		
			CHANGED DEPTH AND LOCATION M.H. Nº 9		
			DELETE DRAINAGE DITCH RELOCATION; SHOW CONC SLAB AND TREES		
7-2-91	BBR	2	CHANGED VERT ALIGNMENT, ADD STORM DRAIN		7/2/91
7/11/91	SA	3	As Const'd Dr 48510 (CCR 2/8/94)		7/15/91

ENGINEER DESIGNED BY | DRAWN BY | CHECKED BY | COUNTY

SEAL

SEAL
REGISTERED PROFESSIONAL ENGINEER
HARVEY D. MARCELL
NO. 23099
EXP. 12-31-93
CIVIL
STATE OF CALIFORNIA

APPROVED BY Ernest L. Smith Jr. 7/14/92
SENIOR ENGINEER — CITY OF MORENO VALLEY
REGISTERED CIVIL ENGINEER NO. 47863
(EXP. 12-31-95)

APPROVED BY Harvey D. Marcell DATE 5-1-91
HARVEY D. MARCELL
R.C.E. NO. 23099 EXP. DATE 12-31-93

SCALE 1" = 40'
DATE MAY 1990

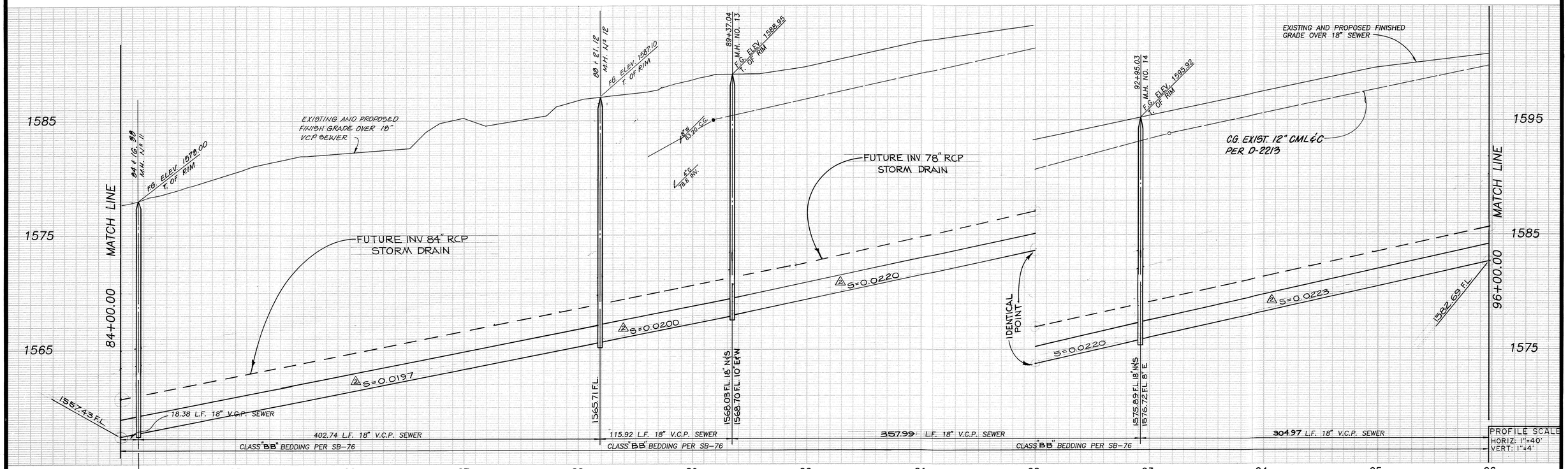
BENCHMARK BRASS DISC SET IN TOP OF A CONC. POST LOCATED 6.8' W'LY OF THE N.W. END OF A CONC. HEADWALL AT THE N.W. COR. OF NASON ST. & EUCALYPTUS AVE. F-446 ELEVATION = 1694.482

IN THE CITY OF MORENO VALLEY
P.M. 23548 O/S
NASON STREET TRUNK SEWER
SEWER IMPROVEMENT PLANS

FOR E.M.W.D.

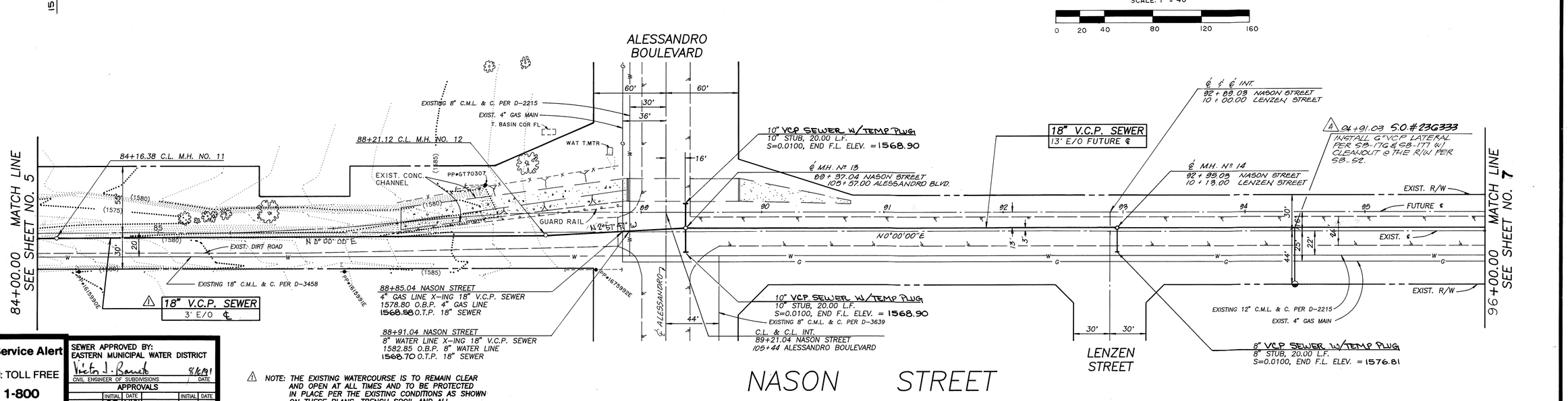
SERV. AREA	32
W.O.	89-345
C.O.	48510
COORD.	6-1
SHT.	5 OF 19
D-	
W.O.	370-88
SD-	14915

3



SCALE: 1" = 40'

0 20 40 80 120 160



Underground Service Alert

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TWO WORKING DAYS BEFORE YOU DIG

SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT

Victor J. Bennett 6/6/91
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	BR	6/19/91	SEWER OPER.		
PLANNING			CONST.		
WATER OPER.			DESIGN		

⚠ **NOTE: THE EXISTING WATERCOURSE IS TO REMAIN CLEAR AND OPEN AT ALL TIMES AND TO BE PROTECTED IN PLACE PER THE EXISTING CONDITIONS AS SHOWN ON THESE PLANS. TRENCH SPOIL AND ALL EQUIPMENT IS SPECIFICALLY NOT ALLOWED TO BE STORED WITHIN THE EARTHEN CHANNEL BETWEEN OCTOBER 15 AND APRIL 15.**

ID #U-22

Winchester Associates, Inc.
ENGINEERING • LAND SURVEYING
23640 TOWER STREET SUITE 3
MORENO VALLEY, CA. 92388 714-924-5425

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DATE	BY	MARK	REVISIONS	APPR.	DATE
12-1-91		⚠	ADDED TOPOGRAPHIC FEATURES AND WATERCOURSE NOTE		
			CHANGED ALIGNMENT STA. 84+00 TO 89+21.04 (HORIZ)		
			DELETED DRAINAGE DITCH REALIGNMENT AND RECONSTRUCTION		
7-20-92	BBR.	⚠	CHANGED VERT ALIGNMENT, ADD STORM DRAIN		
7/14/11	SA	⚠	AS CONST CO 48510 (CE 2/8/94)		
5/19/14	L.A.M.	⚠	ADDED 6" VCP LATERAL @ STA. 94+41.03 S.O. 236333		

ENGINEER | DESIGNED BY | DRAWN BY | CHECKED BY | COUNTY

SEAL

SEAL — REGISTERED PROFESSIONAL ENGINEER — HARVEY D. MARCELL — NO. 23099 — EXP. 12-31-93 — CIVIL — STATE OF CALIFORNIA

APPROVED BY *Ernest F. Smith Jr.* 7/14/92
SENIOR ENGINEER – CITY OF MORENO VALLEY
REGISTERED CIVIL ENGINEER NO. 47863
(EXP. 12-31-93)

APPROVED BY *Harvey Marcell* DATE 5-1-91
HARVEY D. MARCELL
R.C.E. NO. 23099 EXP. DATE 12-31-93

SCALE 1" = 40'
DATE MAY 1990

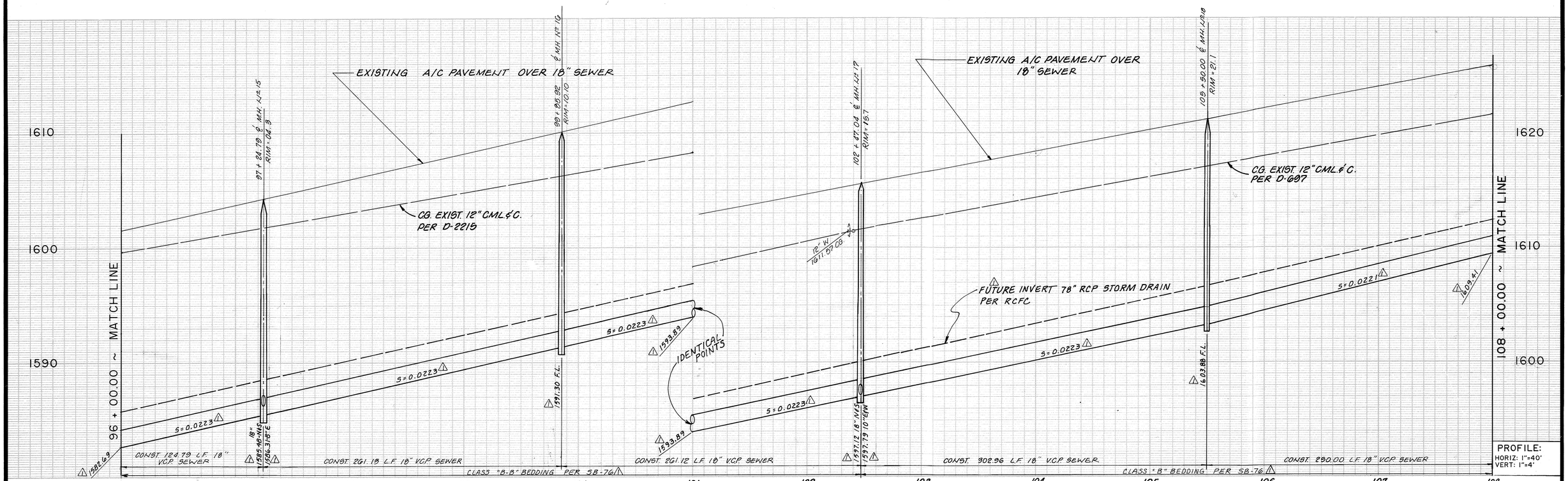
BENCHMARK BRASS DISC SET IN TOP OF A CONC. POST LOCATED 6.8' W'LY OF THE N.W. END OF A CONC. HEADWALL AT THE N.W. COR. OF NASON ST. & EUCALYPTUS AVE. F-446 ELEVATION = 1694.482

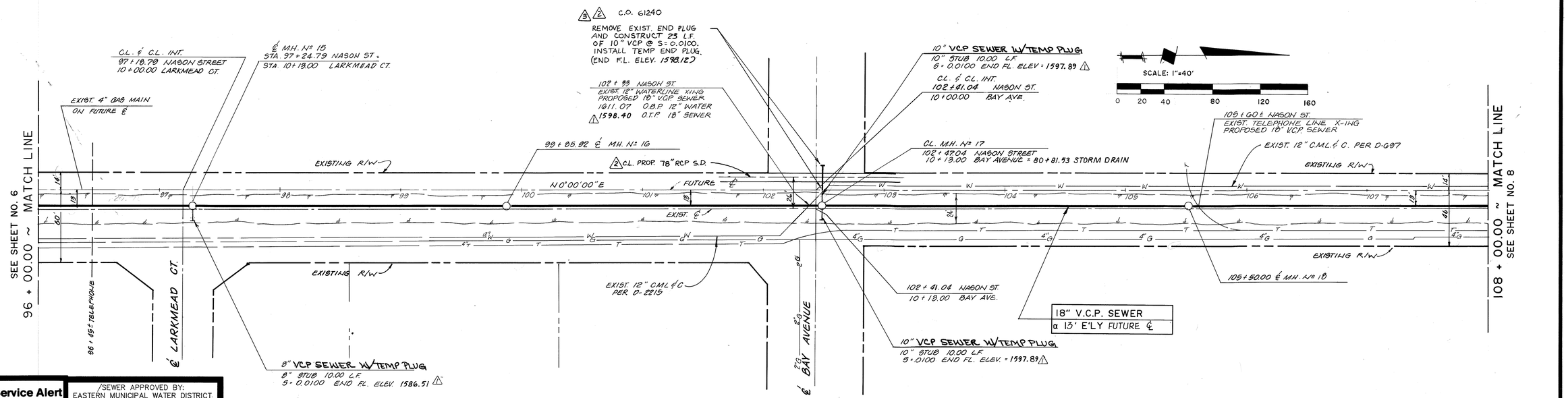
IN THE CITY OF MORENO VALLEY
P.M. 23548 O/S
NASON STREET TRUNK SEWER
SEWER IMPROVEMENT PLANS

FOR E.M.W.D.

SERV. AREA	32
W.O.	89-345
C.O.	48510
COORD.	6-1
SHT.	6 OF 19
D-	
SD-	14916
W.O.	370-88

4





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/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Victor J. Barnett 8/6/91
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	BR	6/19/91	SEWER OPER.		
PLANNING			CONST.		
WATER OPER.			DESIGN		

E.M.W.D. INSPECTOR RICK HANKS 3

ID # U -22

WINCHESTER ASSOCIATES, INC.
ENGINEERS & LAND SURVEYORS
23460 TOWER STREET SUITE 3
MORENO VALLEY, CA 92388 (714) 924-5425

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DATE	BY	MARK	REVISIONS	APPR.	DATE
7/14/11	SA	4	AS CONST. C.O. 48510 (SR. 2/8/94)	PW	7/15/11
7-12-99	CHS	3	AS CONST. C.O. 61240 (CCR 3-26-99)	CHS	7-12-99
12/31/96	CFW	2	ADDED 10" SEWER STUB EXTENSION (C.O. 61240)	TBM	12-31-96
7-20-92	GR	1	REV. SEWER ALIGN., ADDED STORM DRAIN, REV. BEDDING	VJB	7/14/92
ENGINEER				COUNTY	

DESIGNED BY DRAWN BY CHECKED BY

RECOMMENDED FOR APPROVAL
DATE
CHECKED BY
DATE

SEAL COUNTY

SEAL
REGISTERED PROFESSIONAL ENGINEER NANCY D. MARCELL No. 23099 Exp. 12-31-93 CIVIL STATE OF CALIFORNIA

APPROVED BY DATE 7/14/92
Ernest J. Smith
SENIOR ENGINEER CITY OF MORENO VALLEY
R.C.E. NO. 47863 EXP. DATE 12-31-95

APPROVED BY DATE 5-1-91
Nancy Marcell
R.C.E. NO. 23099 EXP. DATE 12-31-93

SCALE 1" = 40'
DATE MAY 1990

BENCHMARK
SEE SHEET NO.1

IN THE CITY OF MORENO VALLEY
PM 23548 O/S
NASON STREET SEWER
SEWER IMPROVEMENT PLANS
FOR W.O.

SERV.AREA 32
W.O. 89-345
C.O. 48510
COORD. 6-1
SHT. 7 OF 19
D-
SD- 1497

4

EXISTING A/C PAVEMENT AND PROPOSED FINISH SURFACE OVER 18" SEWER.

EXISTING A/C PAVEMENT AND PROPOSED FINISH SURFACE OVER 18" SEWER.

108 + 00.00 ~ MATCH LINE

120 + 00.00 ~ MATCH LINE

SEE SHEET NO. 7

SEE SHEET NO. 9

1640 1630 1620 1650

108 109 110 111 112 113 114 115 116 117 118 119 120

109 + 00.00 ℄ M.H. N° 19 RIM = 42.72

112 + 69.10 ℄ MAN. I.D. 28 RIM = 36.77

115 + 87.00 ℄ M.H. NO 21 RIM = 41.72

119 + 00.00 ℄ MAN. I.D. 28 RIM = 48.6

CONSTRUCT 100.00 L.F. 18" V.C.P. SEWER

CONST. 363.10 L.F. 18" V.C.P. SEWER

CONST. 323.90 L.F. 18" V.C.P. SEWER CLASS "B" BEDDING PER SB 76

CONST. 313.00 L.F. 18" V.C.P. SEWER

CONST. 100.00 L.F. 18" V.C.P. SEWER

1609.41 F.L.

1611.62 F.L.

1620.55 F.L. 8" W.

1619.72 F.L. 18" N.S.

1626.94 F.L. 18" N.S.

1627.61 F.L. 10" EXIST

1627.23 F.L.

1633.92 F.L.

1636.15 F.L.

S=0.0221

S=0.0223

S=0.0223

S=0.0223

S=0.0223

FUTURE INV. 78" R.C.P. STORM DRAIN

C.O. EXIST. 12" C.M.L. & C. PER D-695

C.O. EXIST. 12" C.M.L. & C. PER D-696

IDENTICAL POINTS

4" GAS INV. 37.02

30" GAS INV. 39.78

24" W INV. 39.69

4" GAS INV. 32.00

SHERWIN COURT

C.O. 61240 REMOVE EXIST. END PLUG AND CONSTRUCT 12 L.F. OF 8" VCP @ S=0.0100. INSTALL TEMP END PLUG. (END F.L. ELEV. 1620.87)

8" VCP SEWER W/TEMP PLUG 8" STUB 20.00 LF 8" @ S=0.0100 END PL. ELEV. 1620.75

112 + 32 ± NASON ST. EXIST. TELEPHONE LINE X-ING PROPOSED 18" V.C.P. SEWER

C.L. PROP. 78" RCP S.D.

PP#1750445E

PP#2206587E

EXISTING R/W

PALM TREE

EXIST. 12" C.M.L. & C. PER D-695

18" W

N 00°00'00" E

℄ M.H. N° 20 112 + 69.10 NASON ST. 10 + 19.00 SHERWIN CT. = 90+97.49 (RCFC)

C.O. 61240 REMOVE EXIST. END PLUG AND CONSTRUCT 12 L.F. OF 10" VCP @ S=0.0100. INSTALL TEMP END PLUG. (END F.L. ELEV. 1627.93)

C.L. ℄ CL. INT. (FUTURE) 112 + 37.10 NASON ST. 10 + 00.00 SHERWIN CT.

EXIST. ℄ INTERSECTION NASON ST. & SHERWIN CT.

10" VCP SEWER W/TEMP PLUG 10" STUB 20.00 LF 8 @ S=0.0100 END PL. ELEV. 1627.81

115 + 81.50 NASON ST. EXIST. 24" DAILEY WATER XING. PROPOSED 18" VCP SEWER 1629.22 O.B.P. 24" WATER 1627.72 O.T.P. 18" SEWER

C.L. PROP. 78" RCP S.D.

EXIST. 90" HIGH PRESSURE GAS LINE

C.L. ℄ CL. INT. 115 + 61.00 NASON STREET 32 + 69.29 COTTONWOOD AVE.

SCALE: 1"=40'

0 20 40 80 120 160

NOTE: EXIST. 4" GAS LINE 14' E/O W R/W ON FUTURE ℄

116 + 49.00 NASON ST. 4" EXIST GAS LINE X-ING PROPOSED 18" VCP SEWER 1629.00 O.B.P. 4" GAS 1629.77 O.T.P. 18" SEWER

EXIST. 12" W.L. @ 12' W'LY ℄ (PER D-696)

FUTURE ℄

EXIST. GAS SIGN (TYP.)

EX. GAS VALVE

EXIST. WATER VALVE

EXIST. TELEPHONE LINE

COTTONWOOD AVE.

RETAINING WALL

PP#4207245E

EXISTING R/W

100 + 00.00 ℄ M.H. N° 19

18" V.C.P. SEWER
@ 13' E'LY FUTURE ℄

NASON STREET

119 + 70 NASON ST. EXIST GAS LINE X-ING PROPOSED 18" VCP SEWER 1627.92 O.B.P. 4" GAS 1628.34 O.T.P. 18" SEWER

℄ M.H. N° 21 119 + 87.00 NASON ST. + 32 + 70.29 COTTONWOOD ST. = 94+01.39 (RC FC)

116 + 70.00 ± INSTALL 4" SWR. LAT. P.E.R. (98-170)(98-177) W/C.O. P.E.R. (98-32X)(98-197) PVC

119 + 00.00 ℄ M.H. N° 22

PROFILE: HORIZ: 1"=40' VERT: 1"=4'

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TWO WORKING DAYS BEFORE YOU DIG

SEWER APPROVED BY: EASTERN MUNICIPAL WATER DISTRICT
Victor J. Bianchi 8/6/91
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	BR	6-11-91	SEWER OPER.		
PLANNING			CONST.		
WATER OPER.			DESIGN		

E.M.W.D. INSPECTOR RICK HANKS

9/14/11	JA	8	AS CONST CO 48510 (CR 2/8/94)	PW 7/15/11

ID # U-225

WINCHESTER ASSOCIATES, INC.
ENGINEERS & LAND SURVEYORS
23460 TOWER STREET SUITE 3
MORENO VALLEY, CA 92388 (714) 924-5425

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after county approval or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for approval by the county.

DATE	BY	MARK	REVISIONS
12-1-91		1	ADDED NEW STREET 'IMPROVEMENTS'
7-20-92	CFW	2	REVISED SEWER ELEVATIONS TO CLEAR FUTURE 78" R.C.P. STORM DRAIN
7-23-92	BBR	3	MOVE MH 21, 20' NORTH
12/31/96	CFW	4	ADDED 8" & 10" SEWER STUB EXTENSIONS (C.O. 61240)
7-17-97	C.H.S.	5	AS CONST C.O. 61240 C.C.R. 5-24-99
6/28/06	G.S.	6	ADDED 4" SWR LAT. W/C.O. (98-198971)
2/18/10	EM	7	AS CONST SO 198971 (CR 2/11/10)

ENGINEER | DESIGNED BY | DRAWN BY | CHECKED BY

RECOMMENDED FOR APPROVAL

DATE

CHECKED BY

DATE

SEAL COUNTY

SEAL
REGISTERED PROFESSIONAL ENGINEER NANCY D. MARCELL No. 23099 Exp. 12-31-93 CIVIL STATE OF CALIFORNIA

APPROVED BY Ernest J. Smith Jr. DATE 7/14/92
SENIOR ENGINEER CITY OF MORENO VALLEY
R.C.E. NO. 47863 EXP. DATE 12-31-95

APPROVED BY Harvey Marcell DATE 5-1-91
R.C.E. NO. 23099 EXP. DATE 12-31-93

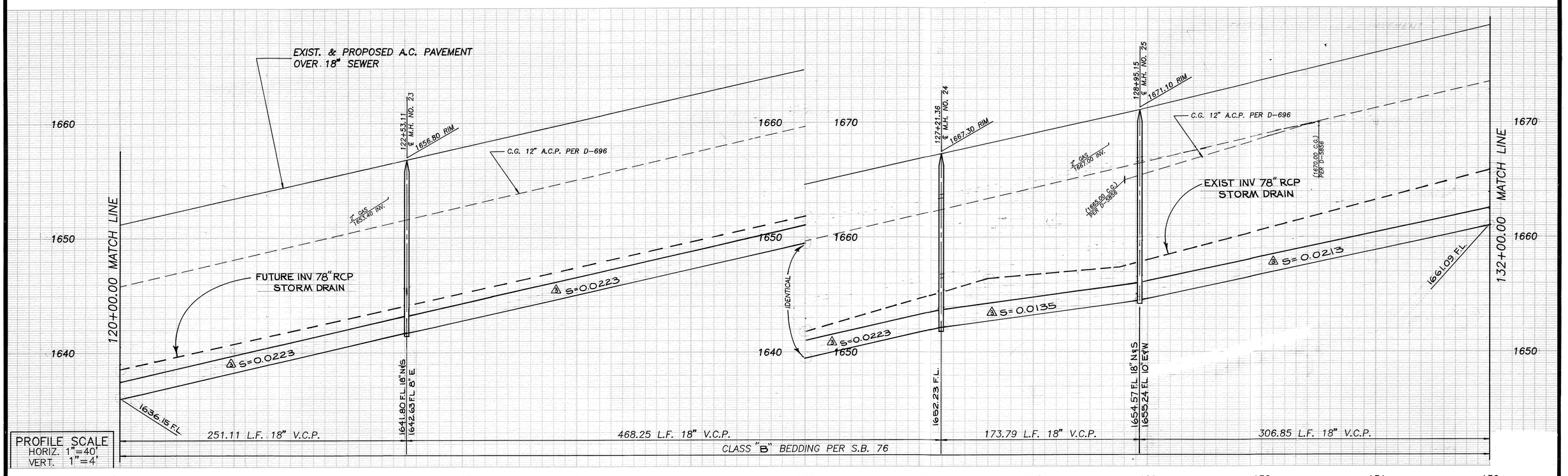
SCALE 1"= 40'
DATE MAY 1990

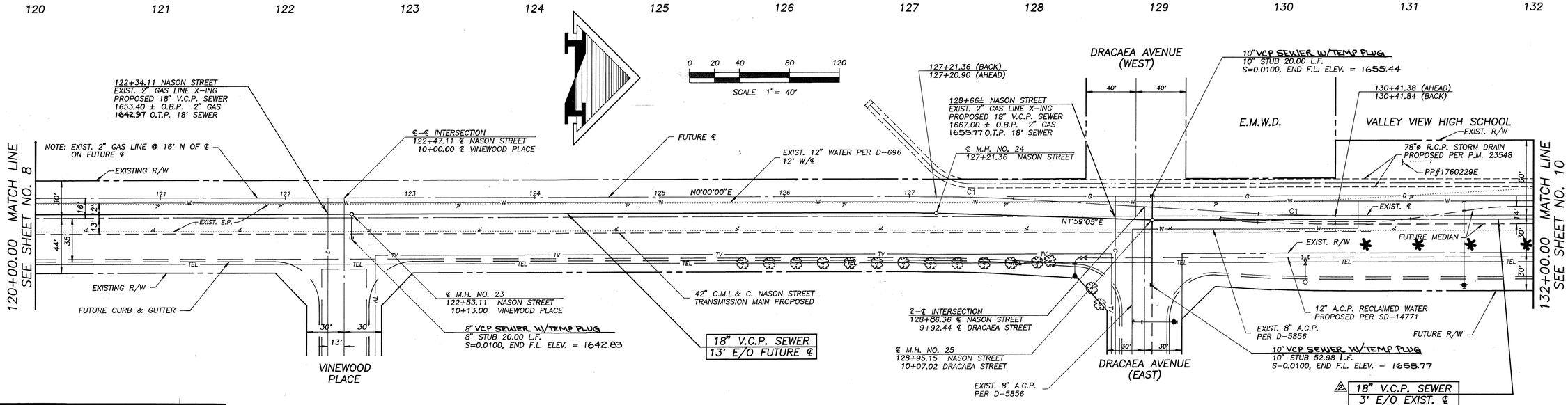
BENCHMARK SEE SHEET NO.1

IN THE CITY OF MORENO VALLEY
PM 23548 O/S
NASON STREET SEWER
SEWER IMPROVEMENT PLANS

FOR | W.O.

SERV.AREA 32
W.O. 89-345
C.O. 48510
COORD. 6-1
SHT. 8 OF 19
D-
SD- 14918 /8





CURVE	RADIUS	LENGTH	TANGENT	DELTA
C1	1000.00'	61.92'	30.97'	03°32'52"

Underground Service Alert
DIG BEFORE YOU DIG
Call: TOLL FREE
1-800 422-4133
TWO WORKING DAYS BEFORE YOU DIG

/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Victor J. Bauch 8/6/91
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	BR	6/19/	SEWER OPER.		
PLANNING			CONST.		
WATER OPER.			DESIGN		

ID # U-22

WINCHESTER ASSOCIATES, INC.
ENGINEERS & LAND SURVEYORS
23460 TOWER STREET SUITE 3
MORENO VALLEY, CA 92388 (714) 924-5425

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DATE	BY	MARK	REVISIONS	APPR.	DATE
2-17-91	BBR	1	ADDED EXISTING PALM TREES AND PALM TREE NOTE	MB	1/6/92
4-23-92	BBR	2	DELETED PALM TREE NOTE, HORIZ REALIGN SEWER NORTH OF MH 25	MB	4/24/92
7-20-92	BBR	3	CHANGED VERT ALIGNMENT, ADD'L CHANGE STORM DRAIN	MB	7/21/92
7/14/11	SA	4	AS CONST CO HB516 (CR 2/8/94)	PW	7/15/11

ENGINEER — DESIGNED BY — DRAWN BY — CHECKED BY — COUNTY

RECOMMENDED FOR APPROVAL
DATE
CHECKED BY
DATE

SEAL COUNTY

SEAL
REGISTERED PROFESSIONAL ENGINEER MARVET D. MARCELL No. 23099 Exp. 12-31-93 CIVIL STATE OF CALIFORNIA

APPROVED BY DATE 7/17/92
SENIOR ENGINEER CITY OF MORENO VALLEY
R.C.E. NO. 47863 EXP. DATE 12-31-95

APPROVED BY DATE 5-1-91
R.C.E. NO. 23099 EXP. DATE 12-31-93

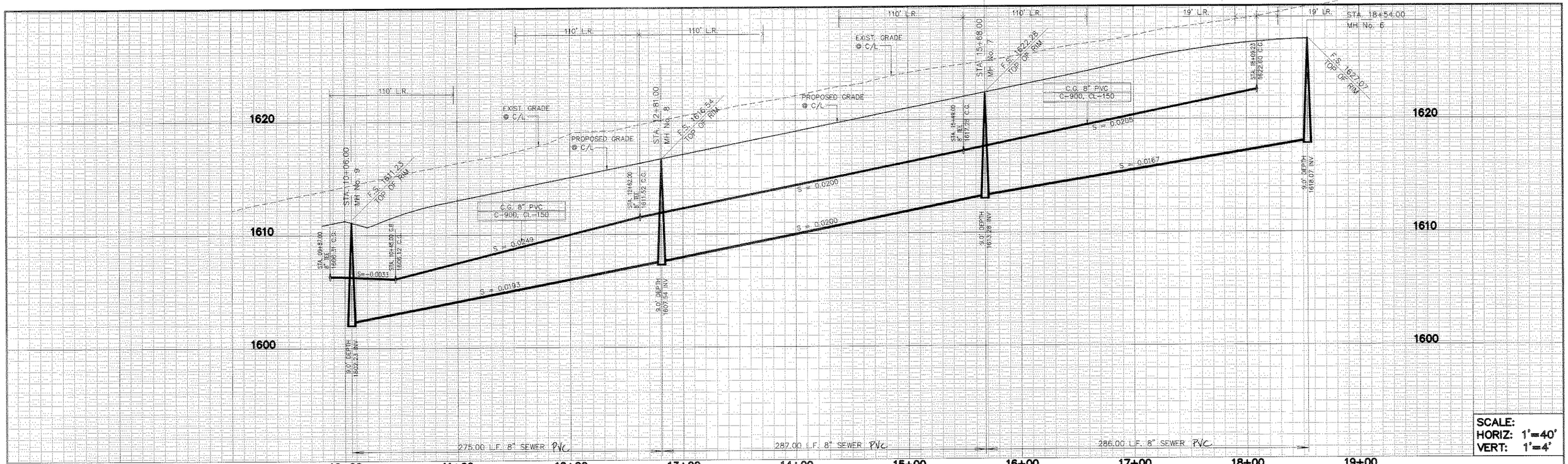
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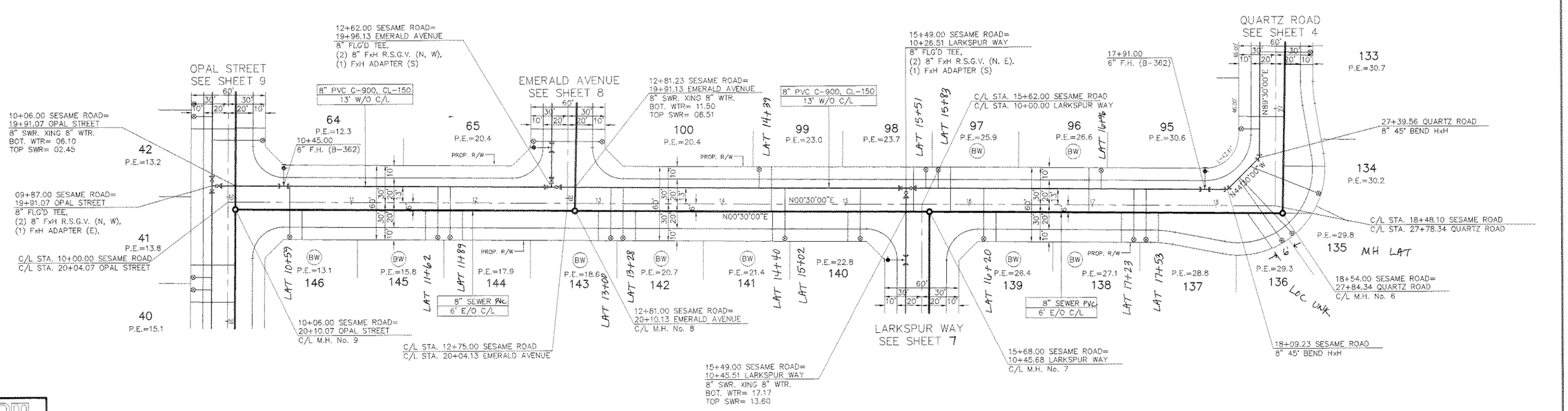
BENCHMARK SEE SHEET NO.1

IN THE CITY OF MORENO VALLEY
PM 23548 O/S
NASON STREET SEWER
SEWER IMPROVEMENT PLANS
FOR W.O.

SERV.AREA 32
W.O. 89-345
C.O. 48510
COORD. 6-1
SHT. 9 OF 19
D-
SD-14916

4





DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

0 10' 20' 30' 40' 80' 120' 160'

SESAME ROAD

WATER / SEWER / RECLAIMED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 9/27/04

APPROVALS	INITIAL	DATE
PROJECT ENG.	JAT	9-23-04
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	11/24/04	EM	AS CONST CO 06082/83/84 LCR	

APPROVED BY: DATE: 10/22/04
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL
CHECK BY: DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

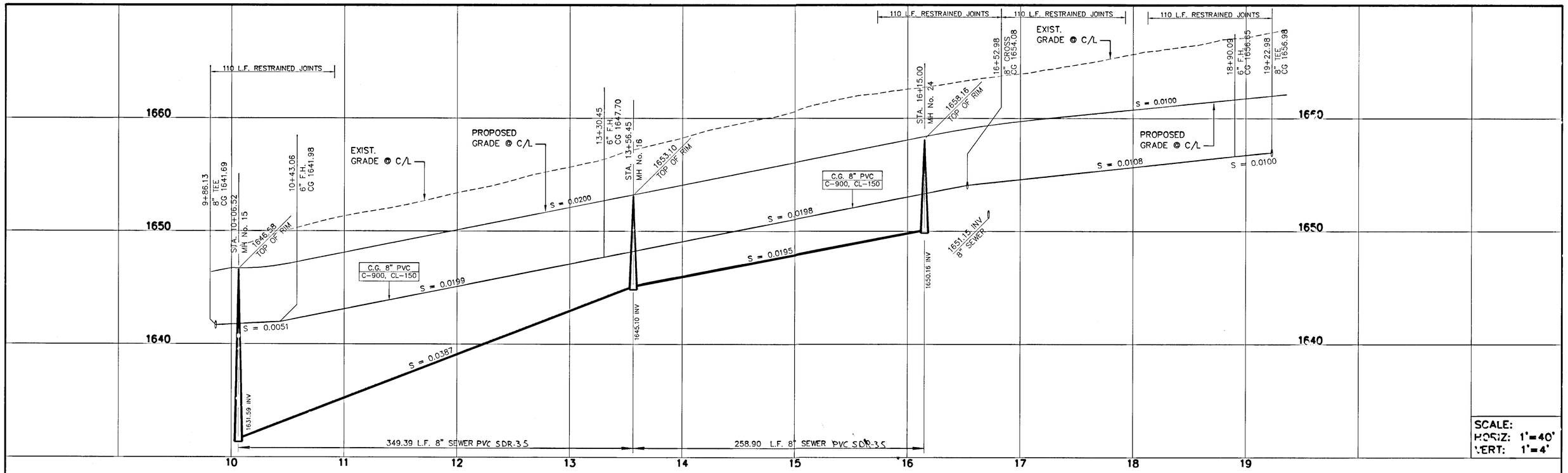
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 DATE 9-16-04
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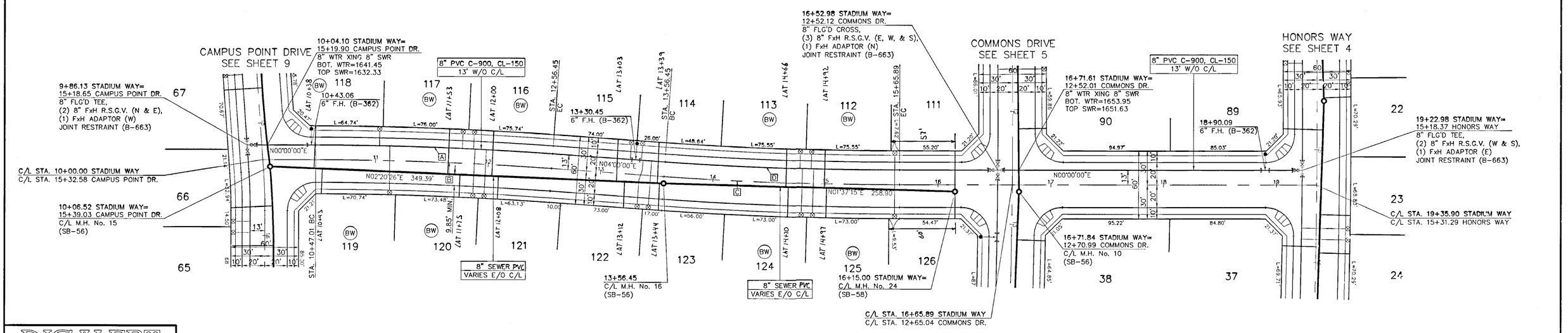
CITY OF MORENO VALLEY

TRACT No. 31212
SEWER, WATER, & RECLAIMED WATER
PLAN & PROFILE
SESAME ROAD

I.D. #	3 & U-22
S.A.	42/32
W.O.	10650
C.O.	06082/83/84
COORD.	61-C-52
SHT.	5 OF 14
D-	29462

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B	04°00'00"	3000.00'	209.44'	104.76'
C	04°00'00"	3000.00'	209.44'	104.76'
D	04°00'00"	2987.00'	208.53'	104.31'

STADIUM WAY

SCALE:
HORIZ: 1"=40'
VERT: 1"=4'

0 10' 20' 30' 40' 80' 120' 160'

DIG ALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
Victor J. Banuelos — CIVIL ENGINEER OF SUBDIVISIONS — 3/3/03 DATE

APPROVALS					
	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M.	2-26-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS				
MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-22-06	RE	AS CONST CO 65074 [CR 2-9-06]	DE 3-22-06

EMWD INSPECTOR EDDIE VALENZUELA

APPROVED BY: TRENT D. PULLIAM, CITY OF MORENO VALLEY — DATE: 3/25/03
R.C.E. No. 20517 EXP. DATE: 09/30/2005
RECOMMENDED FOR APPROVAL — DATE:
CHECK BY: — DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER, TRENT PULLIAM, NO. 20517, EXP. 9-30-05, CIVIL, STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER, JOHN DIERKSEN, NO. 43886, EXP. 6-30-05, CIVIL, STATE OF CALIFORNIA

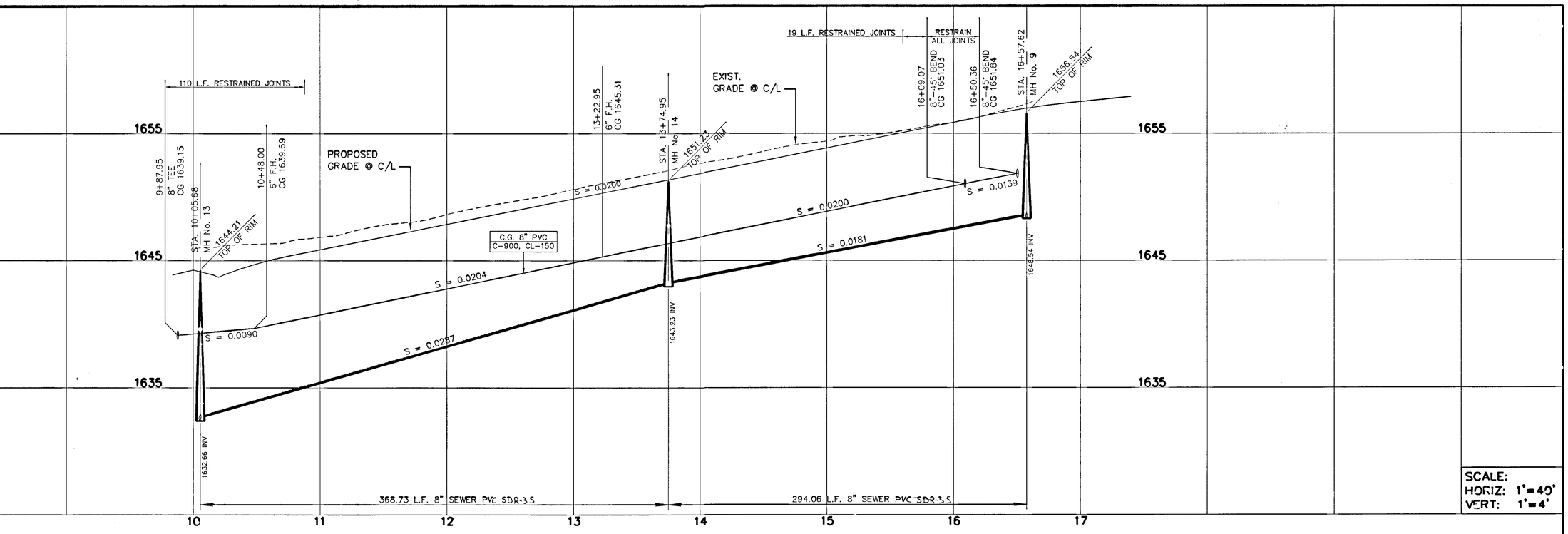
PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 — 2-19-03 DATE
SCALE 1"=40'

IMPROVEMENT DISTRICT No. 3/U22

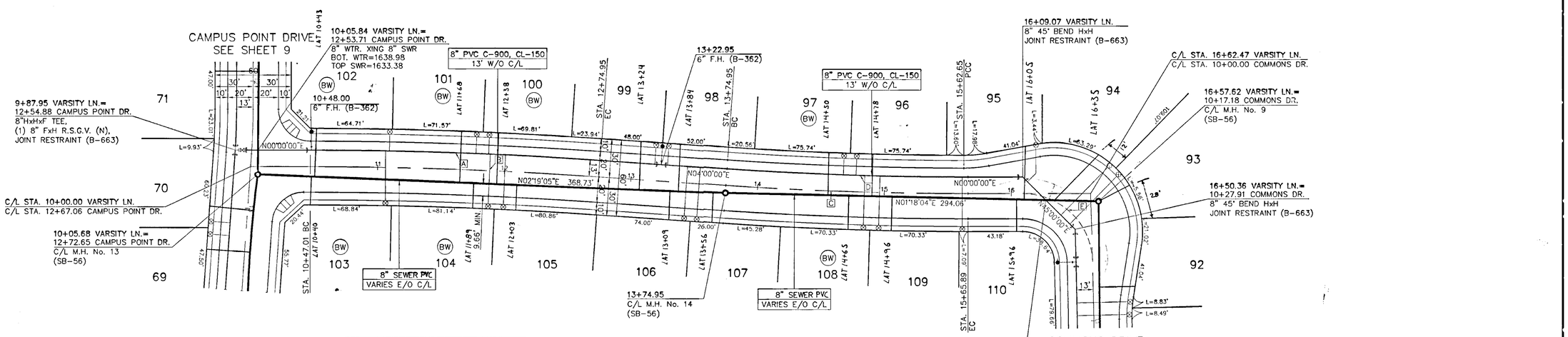
CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
STADIUM WAY

S.A.	41/32
W.O.	10-189
C.O.	65074-75
COORD.	61C-52
SHT.	7 OF 12
D-	25311



SCALE:
HORIZ: 1"=40'
VERT: 1"=4'



CURVE TABLE				
NO.	DELTA	RADIUS	LENGTH	TANGENT
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B	04°00'00"	3265.00'	227.94'	114.02'
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D	04°00'00"	2722.00'	190.03'	95.05'
E	88°32'46"	55.00'	85.00'	53.62'

VARSITY LANE

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TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

0 10' 20' 30' 40' 80' 120' 160'

WATER/SEWER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT
CIVIL ENGINEER OF SUBDIVISIONS — DATE 3/3/03

APPROVALS

	INITIAL	DATE		INITIAL	DATE
PROJ. ENG.	L.A.M	2-25-03	SEWER OPER.	—	—
WATER OPER.	—	—	INSPECTION	—	—

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	3-21-06	RE	AS CONST CO 65074/75/CR2-9-06	RE 3-21-06

EMWD INSPECTOR EDDIE VALENZUELA

APPROVED BY: DATE: 5/25/03
TRENT D. PULLIAM, CITY OF MORENO VALLEY
R.C.E. No. 20517 EXP. DATE: 09/30/2005

RECOMMENDED FOR APPROVAL
DATE:
CHECK BY:
DATE:

SEAL CITY: REGISTERED PROFESSIONAL ENGINEER — TRENT PULLIAM — NO. 20517 EXP. 9-30-05 — CIVIL — STATE OF CALIFORNIA

SEAL: REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6-30-05 — CIVIL — STATE OF CALIFORNIA

PLANS PREPARED UNDER THE SUPERVISION OF:
PHB & ASSOCIATES, INC.
CIVIL ENGINEERING·SURVEYING·LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756
JOHN DIERKSEN RCE 43886 — DATE 2-19-03

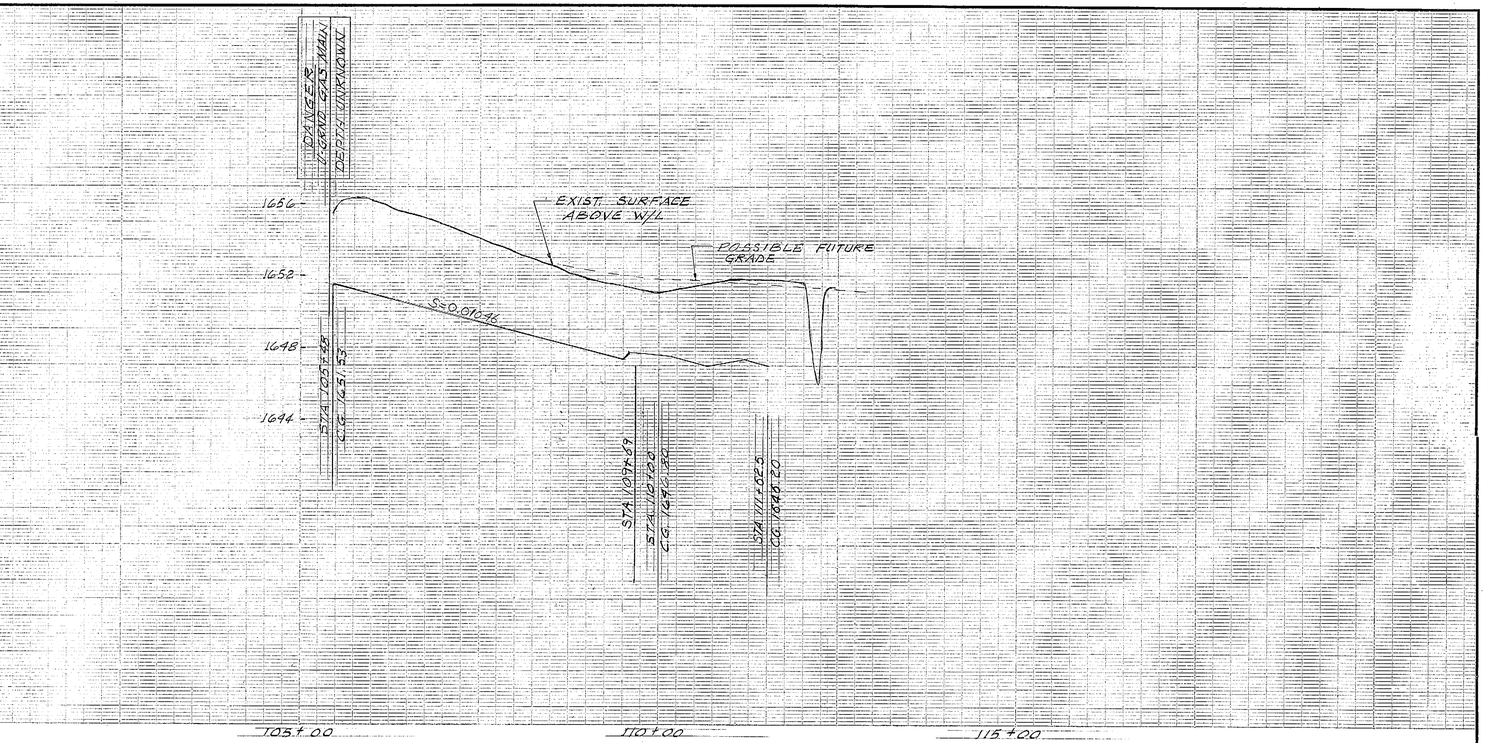
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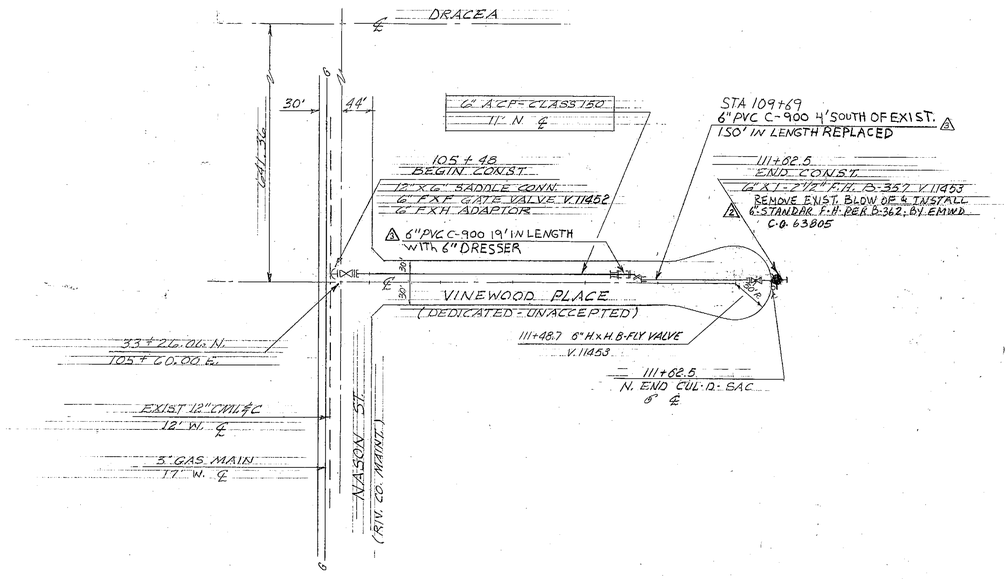
IMPROVEMENT DISTRICT No. 3/U22

CITY OF MORENO VALLEY

SEWER AND WATER PLANS
TRACT 30027
VARSITY LANE

S.A. 41/32
W.O. 10-189
C.O. 65074-75
COORD. 61C-52
SHT. 6 OF 12
D-253/0





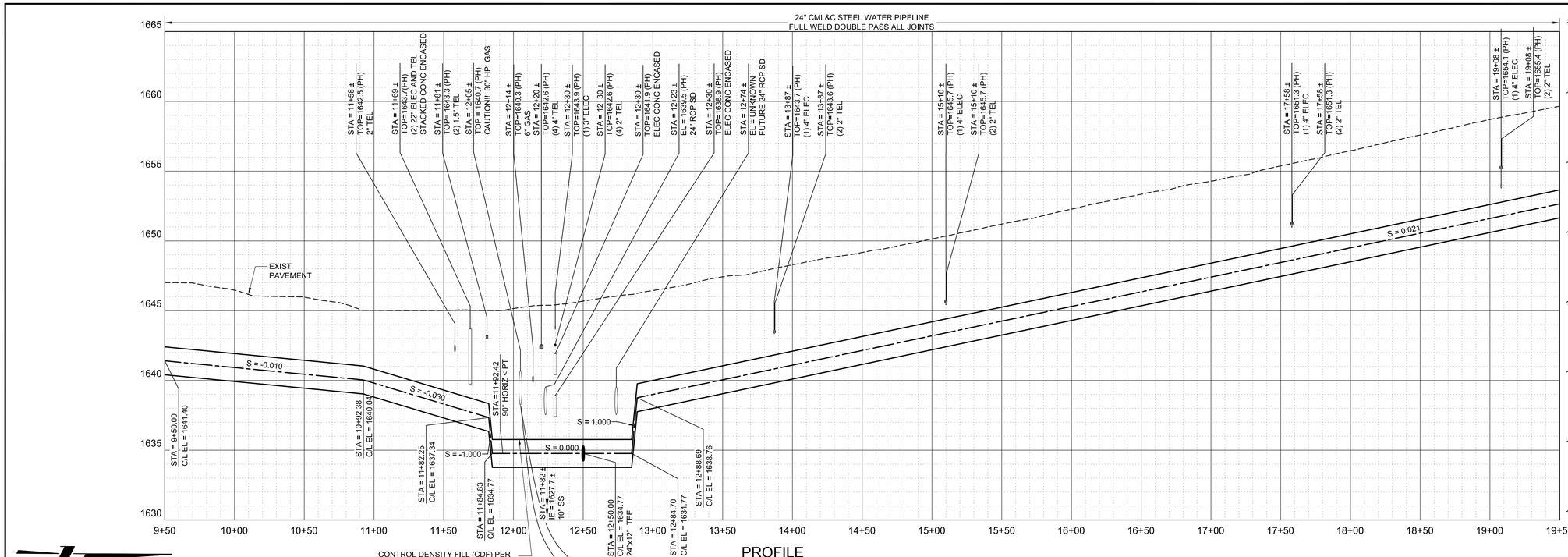
EMWD INSPECTOR CRAIG MCKINLEY

CO 13710

COORD# 61C58
SPEC# 742W-12

REVISIONS					REFERENCES					EASTERN MUNICIPAL WATER DISTRICT
NO.	DATE	INITIAL	DESCRIPTION	APP'VD	T.I.O. L=108'A			SCALE HORIZ. 1"=100' VERT. 1"=8'	DATE	RIVERSIDE COUNTY, CALIFORNIA
1	2/14/01	WW	AS-CONSTRUCTED	DD				DESIGNED		IMPROVEMENT DISTRICT NO. 3
2	3/16/01	T.S.	REMOVE B.O. & INSTALL 6"x6" F.H. B-362 EMWD	WB 4/4/01				DRAWN J.H.	5-17-01	VINEWOOD PLACE
3			AS CONST (CR 5-18-00) CO 63873	RE 5-29-01				TRACED		STA 105+48 TO STA 111+62.5
								CHECKED		
					APPROVALS			SUBMITTED Lm 5-27-81		APPROVED D-5700
					DESIGN	CONSTRUCTION	OPERATIONS	RECOMMENDED		CHIEF ENGINEER

AS CONSTRUCTED 7-1



PROFILE

SCALE H: 1" = 40'
V: 1" = 4'

NOTES:

1. TRENCH BACKFILL PER EMWD STD DWG B-286B. ALL SURFACE TRENCH REPAIRS IN COTTONWOOD AVENUE SHALL BE IN ACCORDANCE WITH CITY OF MORENO VALLEY STD DWGS 602A AND 602C. ALL SURFACE TRENCH REPAIRS IN NASON STREET SHALL BE IN ACCORDANCE WITH CITY OF MORENO VALLEY STD DWG 602B (12" WIDE OVER-GRINDING SHOWN ON EACH SIDE OF TRENCH IN STANDARD DETAIL NOT REQUIRED).
2. UNLESS OTHERWISE NOTED AS PREVIOUSLY POTHOLED (PH), ALL ELEVATIONS SHOWN ON THE PROFILE FOR EXISTING UTILITIES ARE BASED ON A SEARCH OF THE AVAILABLE RECORD INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
3. ALL EXISTING UTILITIES AS SHOWN ON THE PLAN ARE APPROXIMATE BASED ON A SEARCH OF THE AVAILABLE RECORD INFORMATION ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
4. 1" AIR RELEASE LINE SHALL MAINTAIN A POSITIVE SLOPE TOWARDS AIR RELEASE VALVE AND SHALL HAVE A MINIMUM OF 30" COVER.
5. SEE NASON STREET IMPROVEMENT PLANS FOR FUTURE STREET WIDENING AND IMPROVEMENTS. PROJECT NO. 801 0001 70 77. NOT IN THIS CONTRACT.
6. ALIGNMENT SHIFTS UP TO 5-FT TOWARD COTTONWOOD AVENUE CENTERLINE BETWEEN STATIONS 7+00 TO 11+00 TO ACHIEVE SEPARATION FROM EXISTING UTILITIES.

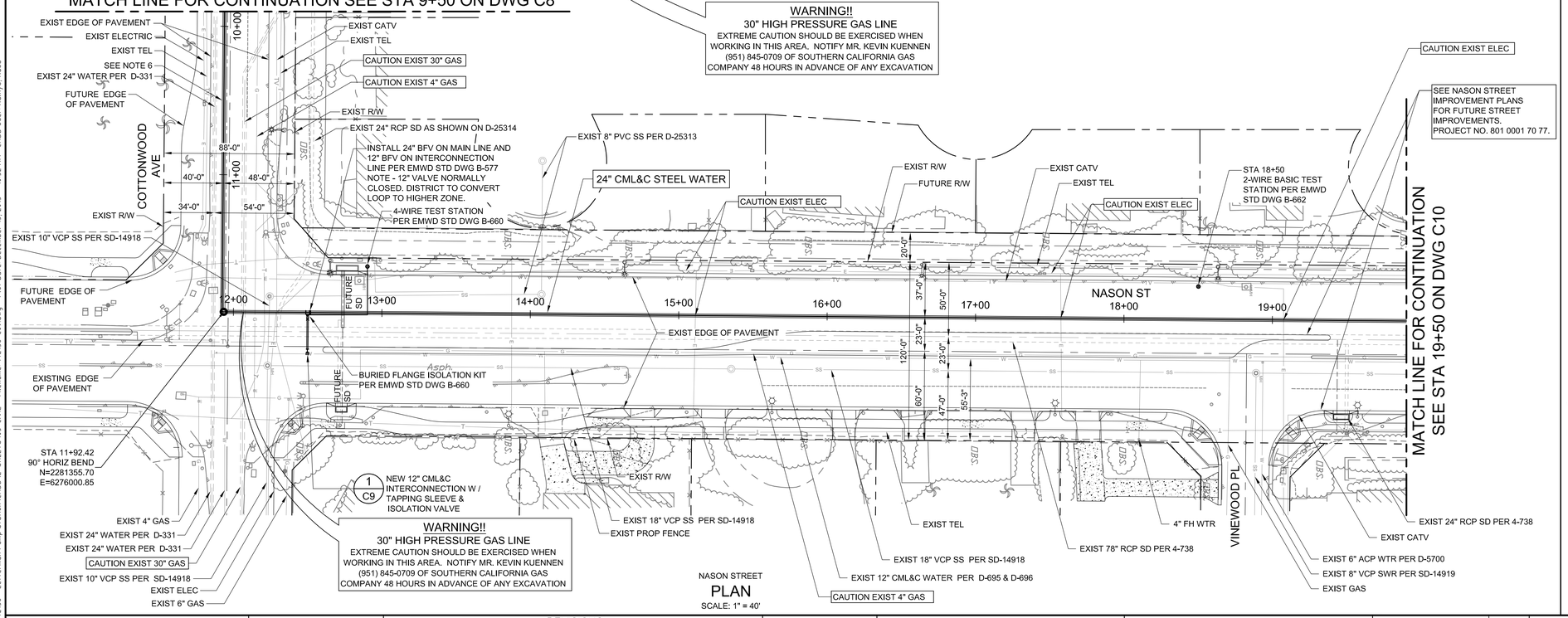
DETAIL NOTES:

1. REPLACE EXCAVATED MATERIAL COMPLETELY.
2. ALL JOINTS AND BOLTS SHALL BE RESTRAINED.
3. INSTALL PERMANENT CONCRETE VALVE SUPPORT UNDER VALVE BEFORE TAP IS MADE. JOINTS AND BOLTS TO BE CLEAR OF CONCRETE.
4. EXPOSE EXISTING PIPELINE AND INSPECT CONDITION OF PIPELINE PRIOR TO WET TAPPING INTO LINE.

DETAIL KEY NOTES:

1. WELD ON 12" DIA TAPPING SLEEVE PER EMWD STD DWG B-271
2. 12" CML&C 45° WELDED BEND
3. 12" RISING STEM TAPPING GATE VALVE (FxF)
4. RESTRAINED 12" FLEX COUPLING
5. 24" BUTTERFLY VALVE PER EMWD STD DWG B-577
6. CONCRETE VALVE SUPPORT PER EMWD STD DWG B-255 (SADDLE OUTLET)
7. NEW 12" WATER LINE TO BE CONSTRUCTED, SEE PLANS
8. INSTALL CAP AND RISER ON ALL BURIED VALVES PER EMWD STD DWG A-492
9. EXISTING WATER MAIN TO BE TAPPED
10. ISOLATION FLANGE
11. 12" BUTTERFLY VALVE PER EMWD STD DWG B-577

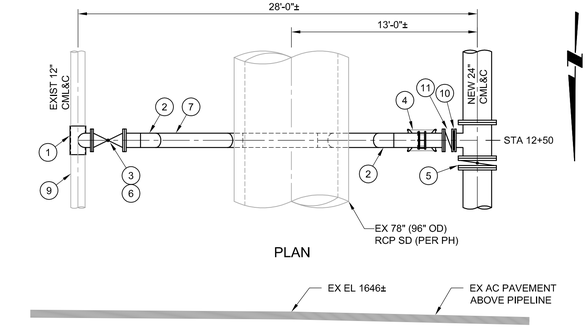
MATCH LINE FOR CONTINUATION SEE STA 9+50 ON DWG C8



WARNING!!
30" HIGH PRESSURE GAS LINE
EXTREME CAUTION SHOULD BE EXERCISED WHEN WORKING IN THIS AREA. NOTIFY MR. KEVIN KUENNEN (951) 845-0709 OF SOUTHERN CALIFORNIA GAS COMPANY 48 HOURS IN ADVANCE OF ANY EXCAVATION

WARNING!!
30" HIGH PRESSURE GAS LINE
EXTREME CAUTION SHOULD BE EXERCISED WHEN WORKING IN THIS AREA. NOTIFY MR. KEVIN KUENNEN (951) 845-0709 OF SOUTHERN CALIFORNIA GAS COMPANY 48 HOURS IN ADVANCE OF ANY EXCAVATION

NASON STREET
PLAN
SCALE: 1" = 40'



DETAIL 1/C9
NO SCALE

EMWD 1860 HWL PZ

SPEC NO. 1226W

CALL BEFORE YOU DIG!
UNDERGROUND SERVICE ALERT
CALL: TOLL FREE
1·800·227·2600
TWO WORKING DAYS BEFORE YOU DIG

Brown AND Caldwell

REVISIONS

No.	DATE	INITIAL	DESCRIPTION	APP'D	DATE
1	11-04-15	APK	AS CONSTRUCTED C.O. 468721		10-15-15

REGISTERED PROFESSIONAL ENGINEER JEFFREY J. ENGLEBURY NO. C48237 CIVIL STATE OF CALIFORNIA

BC JOB NO. 142158

APPROVED BY:
Joe Mouawad 3-25-13
EMWD DIRECTOR OF ENGINEERING DATE

CITY OF MORENO VALLEY
REVIEWED BY:
Mark Sambito 3-27-13
CITY ENGINEER DATE

EASTERN MUNICIPAL WATER DISTRICT
Gregory J. Kowalski 3-25-13
PROJECT MANAGER DATE

APPROVALS	INITIAL	DATE
PROJECT ENG.	RR	3-19-13
INSPECTION	CW	3-22-13
WTR. OPERATIONS	KG	3-19-13
MAINTENANCE	MI	3-19-13

		DATE
DESIGNED	VCH	11/26/12
DRAWN	RMK	11/26/12
TRACED	N/A	N/A
CHECKED	JJE	11/26/12
SUBMITTED		11/26/12

SCALE: AS SHOWN

EASTERN MUNICIPAL WATER DISTRICT

EASTERN MUNICIPAL WATER DISTRICT
RIVERSIDE COUNTY, CALIFORNIA

LETTERMAN BOOSTER STATION
CIVIL
PIPELINE PLAN AND PROFILE
STA 9+50 TO STA 19+50

I.D.	3
S.A.	41
W.O.	411361
C.O.	468721
COORD.	52D
SHT. 12 OF 69	
D-45036	
C9	

Path: P:\Projects\Eastern NWD\142158 - Letterman Pump Station\CADD\2-SHEETS\03-CIVIL Filename: N2158_C09.dwg Plot Date: December 15, 2015 - 10:32 AM CADD User: Kulnys, Rasa

Mike Watson

From: Danielle Clendening
Sent: Wednesday, April 17, 2019 9:33 AM
To: Mike Watson
Subject: FW: 13636 Nason St. Moreno Valley Ca

Here is the Voltage report for Nason Street

From: Ruben Hernandez <Hernandez@encous.com>
Sent: Wednesday, April 17, 2019 9:28 AM
To: Danielle Clendening <dbclendening@placeworks.com>
Cc: Derek Eastman <derek@encous.com>; Francisco Sanchez <fsanchez@ENCOUtilityServices.onmicrosoft.com>
Subject: RE: 13636 Nason St. Moreno Valley Ca

Good morning Danielle,

The city uses a 12kV system.

Thank you,
Ruben Hernandez


E-mail – Hernandez@encous.com

From: Danielle Clendening <dbclendening@placeworks.com>
Sent: Tuesday, April 16, 2019 11:01 AM
To: Ruben Hernandez <Hernandez@encous.com>
Subject: RE: 13636 Nason St. Moreno Valley Ca

Hi Ruben,

Could you tell me what the voltage is for the powerlines located on the west side of Nason Street?

Thank you for your assistance!

Danielle Clendening

From: Ruben Hernandez <Hernandez@encous.com>
Sent: Monday, April 15, 2019 4:05 PM
To: Denise Clendening <dclendening@placeworks.com>
Cc: Danielle Clendening <dbclendening@placeworks.com>
Subject: FW: 13636 Nason St. Moreno Valley Ca

From: Ruben Hernandez
Sent: Monday, April 15, 2019 3:38 PM
To: dbclendening@placworks.com
Cc: Derek Eastman <derek@encous.com>; Francisco Sanchez <fsanchez@ENCOUtilityServices.onmicrosoft.com>; Ruben

Hernandez <rubenhe@moval.org>
Subject: RE: Danielle Clendening

Good afternoon Danielle,
I am reaching out to answer the questions you had regarding 13636 Nason St. The powerlines are located on the west side of the Nason St, and the nearest structure to the property is 250' south of Bay Avenue. Email me with any further questions or concerns.

Thank you,
Ruben Hernandez
ENCO
E-mail – Hernandez@encous.com

From: Ruben Hernandez <rubenhe@moval.org>
Sent: Friday, April 12, 2019 9:42 AM
To: Ruben Hernandez <Hernandez@encous.com>
Subject: FW: Danielle Clendening

From: Vivette Cortez
Sent: Friday, April 12, 2019 9:35 AM
To: Ruben Hernandez <rubenhe@moval.org>
Cc: Tanya Dunlap <tanyad@moval.org>
Subject: Danielle Clendening

Good Morning Ruben,

Danielle Clendening called from Placeworks and would like to know if there are any underground power lines that are located at 13636 Nason Street. And if so, she would like to know how far and the voltage.

She can be reached at 909.989.4449 and/or dbclendening@placworks.com.

Thank you.

This communication contains information that may be confidential and/or legally privileged. It is intended only for the use of the individual or entity to which it is addressed. If you have received this communication in error, please call us at 714-283-6080 and destroy any associated printed materials and delete the electronic material from any computer. Please be aware that any unauthorized disclosure, use or publication of this communication or the information it contains may result in criminal and/or civil liability. Thank you.

This communication contains information that may be confidential and/or legally privileged. It is intended only for the use of the individual or entity to which it is addressed. If you have received this communication in error, please call us at 714-283-6080 and destroy any associated printed materials and delete the electronic material from any computer. Please be aware that any unauthorized disclosure, use or publication of this communication or the information it contains may result in criminal and/or civil liability. Thank you.

Appendix B Pipeline Safety Hazard Assessment for Proposed School Site at Clemson Court and Bay Avenue, by The Planning Center, dated April 2008

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PIPELINE SAFETY HAZARD ASSESSMENT FOR:

PROPOSED SCHOOL

SITE AT CLEMSON

COURT AND BAY

AVENUE



prepared for:

MORENO VALLEY UNIFIED SCHOOL DISTRICT

Contact::
Sergio San Martin,
Director of Facilities

prepared by:

THE PLANNING CENTER

Contact:
Cathleen Fitzgerald, P.E.
Senior Engineer

APRIL 2008

PIPELINE SAFETY HAZARD ASSESSMENT FOR:

PROPOSED SCHOOL SITE AT CLEMSON COURT AND BAY AVENUE

prepared for:

MORENO VALLEY UNIFIED SCHOOL DISTRICT

Contact:
Sergio San Martin,
Director of Facilities

23301 Dracaea Avenue
Moreno Valley, California 92553
Tel: 951.571.7690

prepared by:

THE PLANNING CENTER

Contact:
Cathleen Fitzgerald, P.E.
Senior Engineer

9841 Airport Boulevard, Suite 1010
Los Angeles, CA 90045
Tel: 310.670.9221 • Fax: 310.670.9512
Website: www.planningcenter.com

MORE-18.OE

APRIL 2008

REGISTERED PROFESSIONAL ENGINEER
CATHLEEN M. FITZGERALD
Exp. Date 12/31/07
No. C039541
CIVIL
STATE OF CALIFORNIA

Cathleen M. Fitzgerald, P.E.
Senior Engineer

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1. INTODUCTION 1

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1.2 SCHOOL SITE LOCATION 1
1.3 REGULATORY REQUIREMENTS 1
1.4 REPORT OBJECTIVES 2
1.5 ASSESSMENT METHODOLOGY 2

2. HAZARD ASSESSMENT 3

2.1 PIPELINE LOCATION AND OPERATIONAL DATA 3
2.2 LAND USE AND TERRAIN 3
2.3 RELEASE AND CONSEQUENCE SCENARIOS 3
2.4 NATURAL GAS RELEASE - HAZARD FOOTPRINTS 3
2.5 METEOROLOGICAL DATA 4
2.6 QUANTITATIVE RISK ANALYSIS 4
2.7 RISK CALCULATION SUMMARY 5

3. REFERENCES 7

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Figure 1 Site Location and Pipeline Map
Figure 2 Wind Rose Diagram

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Appendix A. CDE Risk Analysis Summary Forms and Calculations
Appendix B. Agency Correspondence



1.1 PURPOSE

This report presents the results of a pipeline safety hazard assessment (PSHA) prepared for the Clemson Court and Bay Avenue proposed school site within the Moreno Valley Unified School District. The PSHA evaluates potential exposure and fatality risk to students and staff from underground or at-grade natural gas or hazardous liquid pipeline releases.

1.2 SCHOOL SITE LOCATION

The approximately 18.83-acre proposed school site is to be located northwest of the intersection of Clemson Court and Bay Avenue in the City of Moreno Valley within Riverside County, California. The property is bounded on the north by Cottonwood Avenue, on the east by single-family residences, on the south by Bay Avenue, and on the west by a drainage swale and Quincy Street.

1.3 REGULATORY REQUIREMENTS

Under Education Code Section 17251, the California Department of Education (CDE) has authority to approve acquisition of proposed school sites. The school district must obtain CDE approval for sites to receive state funds under the state's School Facilities Program administered by the State Allocation Board. CDE standards and regulations for this process are presented in California Code of Regulations, Title 5, Sections 14010, 14011, and 14012. Information on assessing safety hazard related to pipelines is discussed in Section 14010 (h):

> *The site shall not be located near an above-ground water or fuel storage tank or within 1,500 feet of the easement of an above-ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission.*

By CDE policy, *"any pipeline that has a maximum operating capacity of at least 80 pounds per square inch (psi), including but not limited to those that carry natural gas, liquid petroleum, fuels or hazardous chemicals, shall be included in a pipeline survey, regardless if the pipeline is classified as a transmission or distribution line. Pipelines located within a railroad or other easement or those pipelines serving gas and oil well sites and fields shall also be included".*

Information on completing a safety study related to high-pressure gas pipelines that cross or lie within railroad track easements is discussed in Section 14010 (d):

> *If the proposed site is within 1,500 feet of a railroad track easement, a safety study shall be done by a competent professional trained in assessing cargo manifests, frequency, speed, and schedule of railroad traffic, grade, curves, type and condition of track need for sound or safety barriers, need for pedestrian and vehicle safeguards at railroad crossings, presence of high pressure gas lines near the tracks that could rupture in the event of a derailment, preparation of an evacuation plan. In addition to the analysis, possible and reasonable mitigation measures must be identified.*

Additional information on pipelines is contained in CDE's *School Site Selection and Approval Guide*. This document states that CDE will not approve a proposed school site if the site "*contains one or more*

pipelines, situated underground or aboveground, which carries hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood" (CDE, 2004).

1.4 REPORT OBJECTIVES

To meet the requirements of CCR Title 5 Sections 14010 (d) and (h) and CDE's policy on pipelines, this PSHA is designed to meet the following objectives:

- Identify all natural gas and hazardous liquid pipelines located within 1,500 feet of proposed or existing school sites.
- Identify all natural gas and hazardous liquid pipelines crossing or located within railroad track easements that lie within 1,500 feet of proposed or existing school sites.
- Identify when hazard footprints extend onto school property.
- Complete a quantitative risk analyses to predict student and staff exposure and fatality risk.
- Where appropriate, identify and develop mitigation measures to reduce predicted fatality risk to a level below an established significance threshold.

1.5 ASSESSMENT METHODOLOGY

The CDE will accept the results of pipeline safety hazard assessments conducted in accordance with the CDE's *Guidance Protocol for School Site Pipeline Risk Analysis* (2007) or the Los Angeles Unified School District's (LAUSD's) *Pipeline Safety Hazard Assessment* methodology (LAUSD, 2005). For this PSHA, the LAUSD methodology was used, since it provides a more conservative estimate of risk.

Briefly stated, the LAUSD methodology uses hazard footprint look-up tables to compare hazard footprint length with distance from the pipeline to the school. If a hazard footprint reaches the proposed school property line, then a quantitative risk analysis is completed. If no hazard footprint reaches the school site, then the screening analysis is complete. The quantitative risk analysis process uses appropriate hazard footprint data listed in the lookup tables along with local meteorological data to estimate fatality risk from a pipeline release. A worksheet is provided in the User Manual for this purpose.

Safety risk is then compared to CDE;s and LAUSD's significance threshold level of one in one million (1.0E-06). If estimated risk is greater than or equal to one in a million, mitigation measures are developed. If the estimated risk is less than one in a million, then no significant safety hazard is predicted for the site.

2.1 PIPELINE LOCATION AND OPERATIONAL DATA

One high-pressure natural gas pipeline lies within 1,500 feet of the proposed school property line. The pipeline location is shown on Figure 1. According to the State Fire Marshal, there are no petroleum product pipelines or chemical pipelines within 1,500 feet of the school site.

Natural gas pipeline data was provided by the Southern California Gas Company (Mr. Jon Snyder). The 30-inch natural gas pipeline (identified as Line 2001) is aligned beneath Cottonwood Avenue and is located approximately 55 feet north of the proposed school site. The operating pressure of the 30-inch pipeline is 565 psig. The pipeline is operated at greater than 20% of the Specified Material Yield Strength (SMYS) and therefore is considered to be a transmission line. It is buried approximately 42 inches below ground surface, is well maintained, and is constructed of welded steel that is wrapped and equipped with a cathodic protection system to minimize corrosion. The pipeline is inspected on an annual basis; records from Southern California Gas did not indicate any past leakage along this pipeline.

2.2 LAND USE AND TERRAIN

The proposed school site is surrounded on all four sides by residential developments that have either been recently completed or are in various stages of construction. There are no buildings or obstructions that could block or buffer a jet flame or vapor release from reaching the school site in the unlikely event an incident were to occur along the natural gas pipeline beneath Cottonwood Avenue. Potential stationary or mobile ignition sources include motor vehicles traveling along the major roads and local streets, overhead high voltage lines, traffic signals, and residential gas heating units.

2.3 RELEASE AND CONSEQUENCE SCENARIOS

In accordance with LAUSD's *PSHA User Manual*, two conservative release scenarios were evaluated: 1) a rupture or large volume release equal to the pipeline's diameter, and 2) a leak or small volume release from a 1-inch diameter hole. Three potential consequences were evaluated for each release scenario: 1) jet flame/radiant heat flux (10 kW/M2), 2) flammable vapor cloud flash fire (LFL – 5.0 % for methane), and 3) unconfined vapor cloud explosion (5.0 psig).

2.4 NATURAL GAS RELEASE - HAZARD FOOTPRINTS

Relevant hazard footprint data were calculated using the procedures specified in LAUSD's *PSHA User Manual*.

2.4.1 30-Inch Natural Gas Pipeline, Southern California Gas Co. – Aligned beneath Cottonwood Avenue, 565 psig, 55 feet from proposed school site

Hazard	*Hazard Footprint Length – Rupture (ft)*	*Footprint Reaches School Site?*	*Hazard Footprint Length – Leak (ft)*	*Footprint Reaches School Site?*
Jet Flame Width	123	Yes	4	No
Radiant Heat	980	Yes	38	No
FVC	1,584	Yes	22	No
UVCE	599	Yes	316	Yes
Combined FVC + UVCE	2,183	Yes	338	Yes

Since several of the hazard footprints reach the school site, a quantitative risk analysis was conducted for this pipeline.

2.5 METEOROLOGICAL DATA

Wind direction and frequency data for the Riverside meteorological station, located approximately 13 miles southeast of the proposed school site, were used in the quantitative risk analysis. Figure 2 shows the Riverside monitoring station wind rose diagram for school attendance hours (8 am to 4 pm) and Stability Classes A through F. For the selected school location, wind vectors included directions from E to W (clockwise) for the leak and rupture scenarios. For Stability Class D, the wind blows towards the school site 23 percent of the time.

2.6 QUANTITATIVE RISK ANALYSIS

2.6.1 Pipeline Accident Rates

The mean annual accident rate for high pressure (> 80 psig) natural gas transmission pipelines in California for the years of 1984 to 2001 is 1.2×10^{-4} per pipeline mile-year (CDE,2007). FEMA recommends using a rupture to leak rate of 20% for ruptures and 80% for leaks (FEMA, 1989).

2.6.2 Pipeline Segment

Pipeline accident rate was adjusted for the length of pipeline segment from which a hazard footprint could reach the proposed school property line. LAUSD's *PSHA User Manual* provides an equation for calculating the pipeline segment distance. This equation is embedded in the fatality risk worksheet.

2.6.3 School Attendance

The typical school attendance time is 8 hours per day for 180 days per calendar year. This equates to an annual attendance rate of 16 percent. This value is embedded in the fatality risk worksheet.

2.6.4 Conditional Probabilities - Ignition

The conditional probability for delayed ignition of FVC at the school used in the quantitative risk analysis was modified from 0.4 to 0.7 for the natural gas rupture scenario, per the *PSHA User Manual*.

2.6.5 Conditional Probabilities - Fatality

The radiant heat and UVCE fatality probabilities were modified from the default values, as per the LAUSD *PSHA User Manual.* For the radiant heat fatality, a three-point average at the northern boundary, midpoint, and southern boundary of the school site was used. For the rupture scenario, it was assumed that the UVCE occurred in the center of the school property and the fatality probability was based on a three point average out from the center to each of the four property boundaries. The calculated fatality probabilities are listed below:

- 30-inch Natural Gas Pipeline - Radiant Heat Fatality Probability – Rupture – 0.61
- 30-inch Natural Gas Pipeline - UVCE Fatality Probability – Rupture – 0.72

2.7 RISK CALCULATION SUMMARY

Risk calculation results for the natural gas pipeline are provided in Table 1. The estimated fatality risk for the 30-inch natural gas pipeline (identified as line 2001) is 9.4×10^{-7}. Since the calculated risk is less than one in a million (1.0×10^{-6}), the risk is not considered to be significant and no further analysis is required.



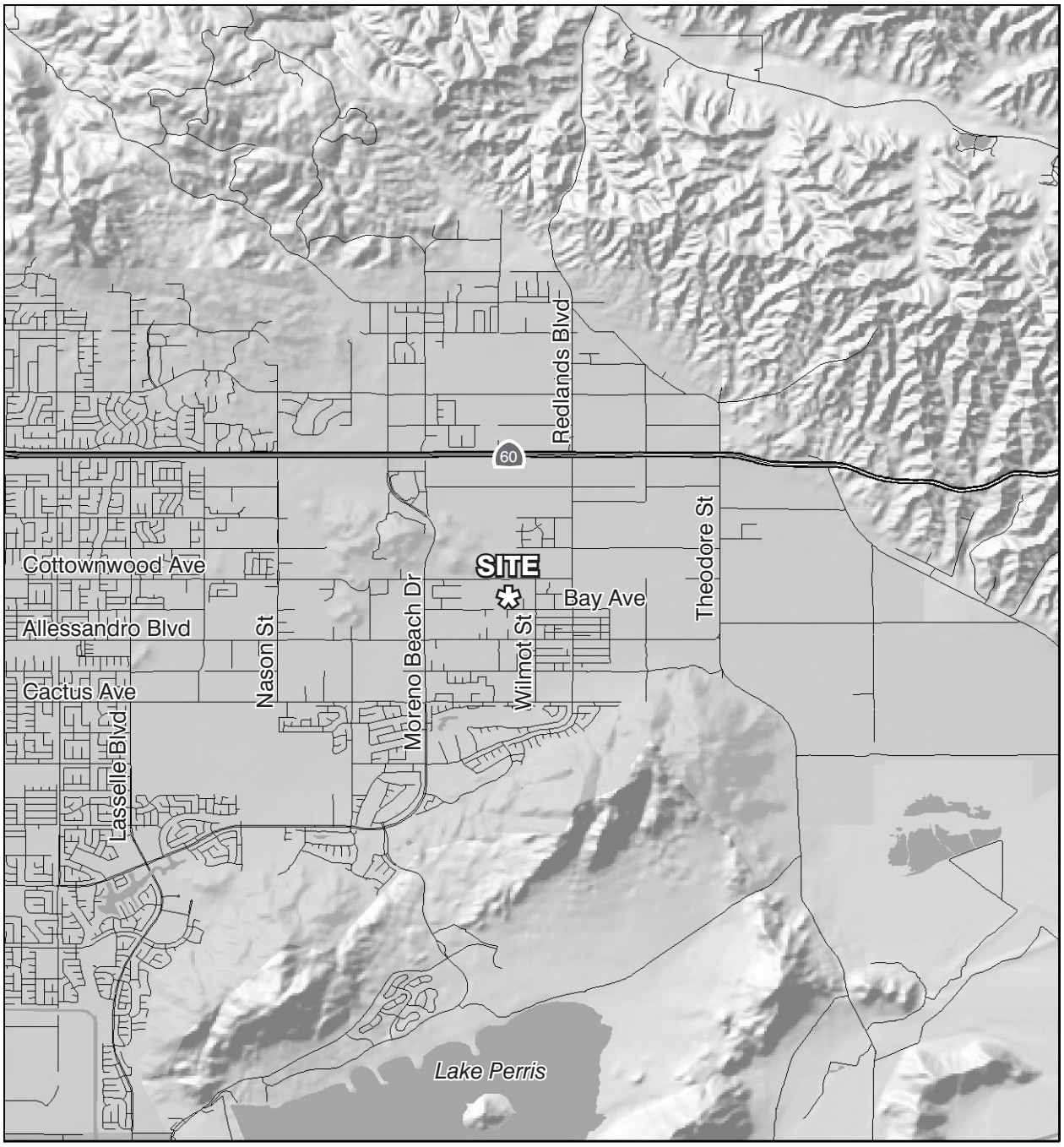
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3. References

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6. South Coast Air Quality Management District, 1981. Meteorological Data Set for Riverside, California.
7. Southern California Gas Company. 2008. Letter from Mr. Jon Snyder, Regional Associate Engineer, Southern California Gas Company, to Mr. James Bahng, Senior Scientist, The Planning Center. Dated April 18, 2008.
8. Southern California Gas Company. 2008. Telephone communication between Mr. Jon Snyder, Regional Associate Engineer, Southern California Gas Company, to Mr. James Bahng, Senior Scientist, The Planning Center. Dated April 21, 2008.

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Site Location



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Site Boundaries



Elementary School Site Boundary
30-Inch Natural Gas Pipeline

0 1,000
Scale (Feet)

Source: Google Earth Pro 2008

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Appendix A. CDE Risk Analysis Summary Forms and Calculations



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Local Educational Agency			
Date:	April 30, 2008		
Local Educational Agency	Moreno Valley Unified School District		
Contact	Sergio San Martin, Director of Facilities		
Telephone Number	951.571.7690		
E-mail address			
Street Address	23301 Dracaea Avenue		
Department or Mail Drop			
City	Moreno Valley		
County	Riverside		
Zip Code	92553		
Proposed School Campus Site			
Name	Clemson Court and Bay Avenue Proposed Site		
Location Description	Northwest of the intersection at Clemson Court and Bay Avenue (assessor parcel 478250001)		
Pipeline of Interest	30-inch natural gas pipeline		
Operator/Owner	Southern California Gas Company		
Product Transported	Natural gas		
Pipeline Diameter (inches)	30		
Operating Pressure (psig)	565 psig (MAOP of 584 psig)		
Closest Approach to Property Line (ft)	55 feet		
Individual Risk Estimate Result			
Individual Risk Estimate Value	9.4E-07		
Individual Risk Criterion	1.0E-06 (0.000001)		
IR Significance (check one)	**Significant**		
	Insignificant	X	

Certification and Signatures of Risk Analyst(s)

This analysis was conducted in accordance to procedures described in the LAUSD's *PSHA User Manual*.

I certify that the estimated risk levels were derived based upon LAUSD's *PSHA User Manual*., unless otherwise noted, and that these levels demonstrate, with reasonable expectations of uncertainties for such estimates, that the estimated Individual Risk for the school site, as the site was planned at the time of this analysis, including mitigation measures, if any, meets the Individual Risk Criterion stated in both the CDE and the LAUSD protocol, based on the information provided to me.

Printed Name	***Signature***	***Position or Title***
Dr. Cathleen M. Fitzgerald, P.E.	Cathleen Fitzgerald	Senior Engineer

Notice: In the event that the Individual Risk Criterion could not be met, at the option of the LEA, CDE will still accept a report for review and consultation with the LEA.

Appendix B. Agency Correspondence



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Appendix C Water Pipeline Analysis

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Table A

Water Pipeline Analysis

Proposed Moreno Valley Elementary School - Nason Street

Street Flow							
Pipeline Diameter (in)	Pipeline Location	Release Rate (cfs)	Street Width (ft)	Longitudinal Slope	Depth of Flow in Street (in)	Curb Height (in)	Exceeds Street Capacity?
12	Nason Street	3.93	60	0.019	2.1	6	No

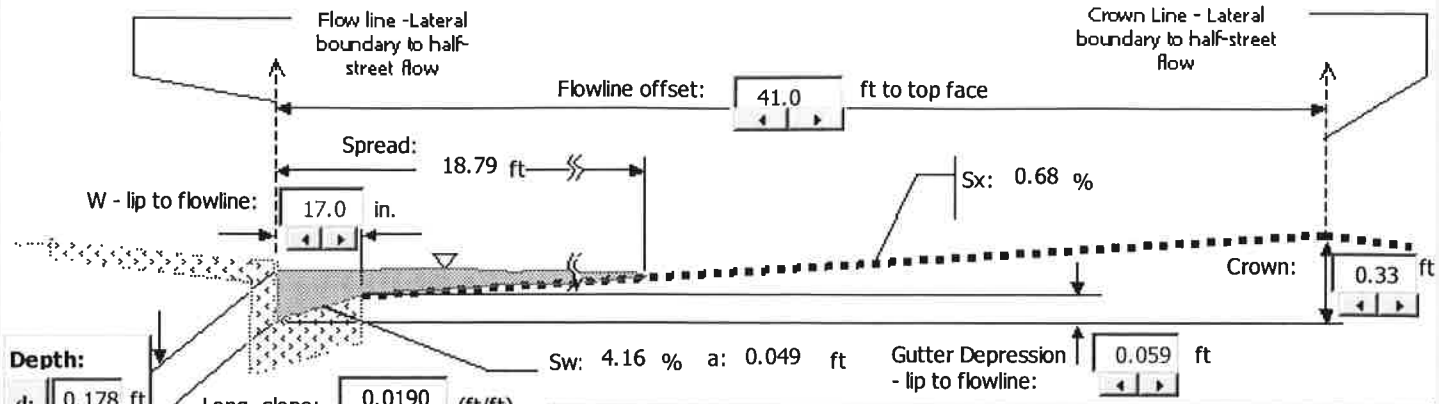
Modified Manning's Equation Solver

Version: 3.0<>5/10/2017 2:56:55 PM

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Print | Save | Quit

Parameters | Composite Triangular Sections | Head - Discharge Table | Assumptions | Inlet Geometry | Disclaimer



Local Parameters:

Local inlet flow line depression: 2.0 in.

Curb Opening Parameters:

C-O Apron wider than gutter: 0 in.

S'w 15.2 % Se: 4.35 %

Length of curb opening inlet: 12.0 ft

Lt: 28.70 ft

80 % Clear Efficiency 51.9 %

Curb opening flowby: 1.87 cfs

P-1-7/8-4

Print Chart 7

Grate Parameters:

Apron wider than grate: 2 in.

Length: 48 in. Width: 22 in.

% Factor 50 % Factor 50

Splash-over Vel: 7.41 ft/s Vel over grate: 5.10 ft/s

Eo: 87.59 %

Rs: 2.03 % Rf: 100.00 %

Side flow captured: 0.02 cfs Frontal captured: 0.82 cfs

Total combined CB flowby: 1.03 cfs

Street Parameters:

Q:	3.89	cfs
K:	28.2	
Vel:	3.13	ft/s
Eo:	24.1	%
W/T:	0.0754	

Standard Manning's:

Q:	3.19	cfs
K:	23.1	
Vel:	2.56	ft/s
Rh:	0.07	ft
Area:	1.24	sf

Appendix D Geotechnical Investigation

Appendices

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John R. Byerly
INCORPORATED

GEOTECHNICAL INVESTIGATION

NEW ELEMENTARY SCHOOL

NORTHEAST CORNER OF NASON STREET
AND BAY AVENUE

MORENO VALLEY, CALIFORNIA

MORENO VALLEY UNIFIED SCHOOL DISTRICT

GEOTECHNICAL ENGINEERS • TESTING AND INSPECTION
2257 South Lilac Ave., Bloomington, CA 92316-2903
Bloomington (909) 877-1324 Riverside (909) 783-1910 Fax (909) 877-5210

John R. Byerly
INCORPORATED

GEOTECHNICAL INVESTIGATION

NOVEMBER 22, 2019

NEW ELEMENTARY SCHOOL

NORTHEAST CORNER OF NASON STREET AND BAY AVENUE

MORENO VALLEY, CALIFORNIA

CLIENT:

MORENO VALLEY UNIFIED SCHOOL DISTRICT

FACILITIES PLANNING AND DEVELOPMENT DEPARTMENT

13911 PERRIS BOULEVARD, BUILDING A

MORENO VALLEY, CALIFORNIA 92553

ATTENTION: JOHN S. NICHOLS, FACILITIES PLANNER

RPT. NO.: 6199
FILE NO.: S-14167

DISTRIBUTION:
(4) CLIENT

GEOTECHNICAL ENGINEERS • TESTING AND INSPECTION
2257 South Lilac Ave., Bloomington, CA 92316-2903
Bloomington (909) 877-1324 Riverside (909) 783-1910 Fax (909) 877-5210

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(8) Liquefaction and Dynamic Settlement Analysis

(9) Geologic Hazards Report

INTRODUCTION

From March through November of 2019, an investigation of the soil conditions underlying the proposed elementary school site was conducted by this firm. The purpose of our investigation was to evaluate the surface and subsurface conditions at the site with respect to safe and economical foundation types, vertical and lateral bearing values, liquefaction and seismic settlement potential, support of concrete slabs-on-grade, and site preparation. Included in the recommendations are the seismic design parameters as required by the California Building Code and ASCE Standard 7-10. Recommendations are also provided for the design of asphalt and portland cement concrete pavement for vehicle traffic and pedestrian areas. Our consulting engineering geologist, Terra Geosciences, has evaluated the geologic conditions attendant to the site as required by the California Geological Survey. The geologic hazards report is presented as Enclosure 9. A preliminary analysis of the site seismicity indicated that the seismic design parameter S_1 would exceed 0.75g. Therefore, the geologic hazards report included a site-specific ground motion analysis. That analysis included a seismic shear-wave survey of the subsurface material within the south portion of the campus. The seismic shear-wave survey report is presented as "Appendix A" in the geologic hazards report by Terra Geosciences. Our geotechnical investigation, together with our conclusions and recommendations, is discussed in detail in the following report.

The field portion of this investigation was conducted in two phases. The first part was performed in March of 2019 in conjunction with the geologic hazards report. Prior to issuance of the geotechnical investigation, the building configuration changed. Additional borings were subsequently performed in November of 2019 and additional analyses were conducted. This report addresses the revised site configuration.

This report has been prepared for the exclusive use of the Moreno Valley Unified School District and their design consultants for specific application to the project described herein. Should the project be modified, the conclusions and recommendations presented in this report should reviewed by the geotechnical engineer. Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties, express or implied.

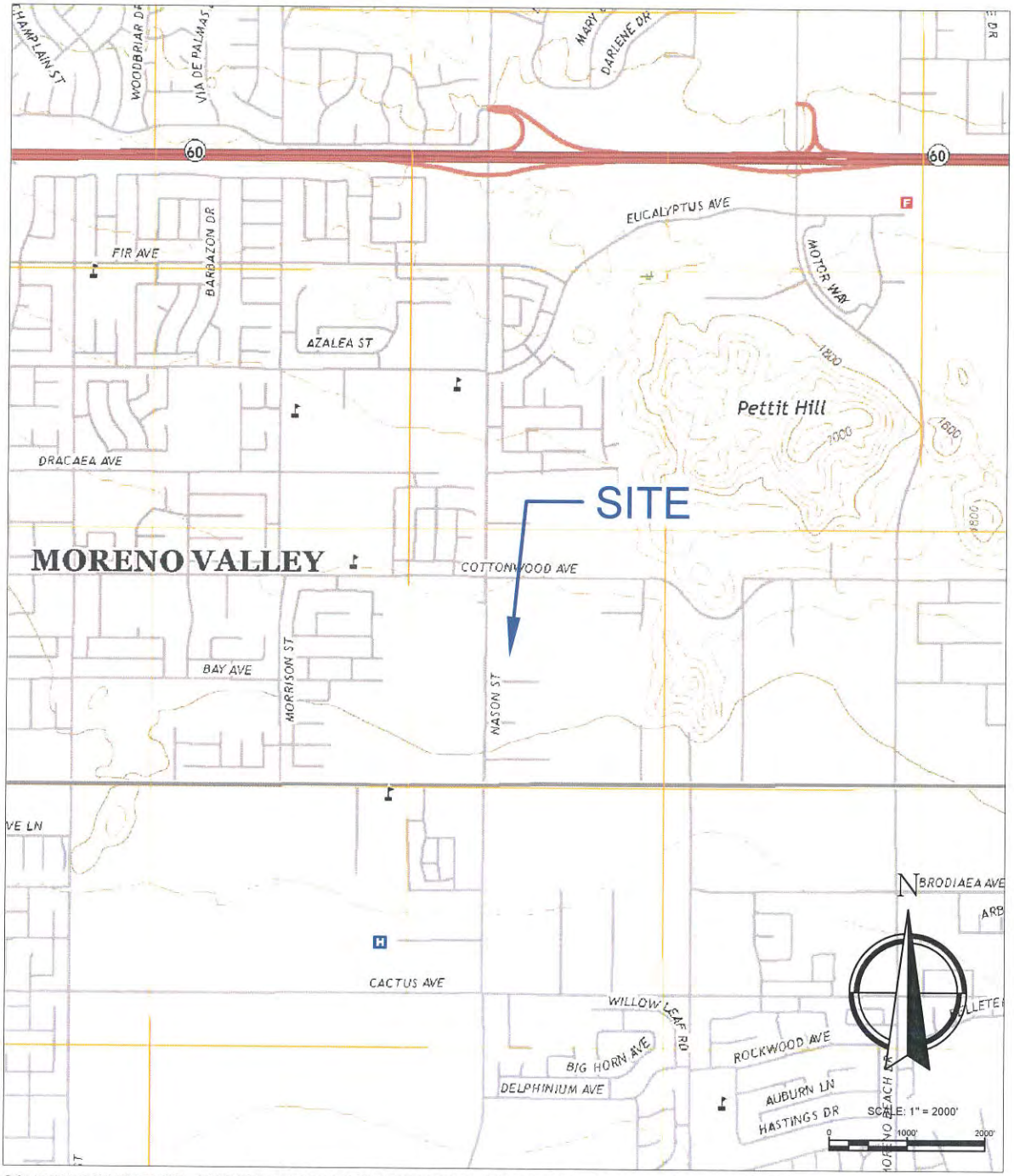
PROJECT DESCRIPTION

For the preparation of this report, we reviewed a schematic site plan prepared by WLC Architects, dated October 31, 2019. We understand that proposed construction will consist of a new two-story elementary school building with a footprint area of about 54,400 square feet. The two-story portion of the structure will be situated towards the central part of the building. The building will be located in the western portion of the property. Wood frame construction incorporating concrete slab-on-grade floors is anticipated. The building will be supported on conventional shallow isolated and continuous footings. The project is in the conceptual design stage at this time. For the purpose of this report we have assumed maximum column and wall loads of 100 kips and 3.0 kips per linear foot, respectively. Parking facilities are proposed to be situated along the western site perimeter and a staff parking lot is planned in the northeastern quadrant of the site. A fire lane will be paved with either asphalt concrete or portland cement concrete, depending on its location on the property. Basketball courts are planned in the central part of the site, and soccer fields will be situated in the eastern part of the property. A kindergarten playground is proposed for the western portion of the southern part of the school property. An area will be reserved for portable classroom buildings in the east-central section of the site between the soccer fields and the staff parking lot. Since the building is one continuous structure, earthwork will be required to bring the site to the desired grade. It is anticipated that maximum cuts and fills on the order of 10 feet may be required. Major slope construction is not expected, however some small retaining walls may be built. The site configuration and proposed development are illustrated on Enclosure 1.

SITE CONDITIONS

The approximate 11.2-acre site is located on the northeast corner of Nason Street and Bay Avenue in the city of Moreno Valley. An Index Map showing the general vicinity of the site is presented on the following page. The coordinates of the site are latitude 33.9219° N and longitude 117.1904° W (WGS 1984 coordinates). The majority of the property is undeveloped and is covered with a relatively thick growth of weeds. An abandoned single-family residence and associated outbuildings are situated in the northwestern corner of the site adjacent to Nason Street. A buried structure that may be a water well is located in the extreme northwest corner of the site next to Nason Street. Another buried structure is situated towards the east-central part of the single-family residential property. Based on a review of Google Earth images, the property

INDEX MAP



SOURCE DOCUMENTS: USGS SUNNYMEAD QUADRANGLE, CALIFORNIA, 7.5 MINUTE SERIES, 2018

TOWNSHIP AND RANGE: SECTION 10, T3S, R3W

LATITUDE: 33.9219° N

LONGITUDE: 117.1904° W

John R. Byerly INCORPORATED

Rpt. No.: 6199
File No.: S-14167

was previously used as a grove for fruit trees. A windmill used to occupy the central portion of the site. The adjacent property to the north is occupied by a church and vacant land. Short concrete standpipes and irrigation lines are present in the northern portion of the property adjacent to the property line south of the church. A masonry block wall approximately 6 feet in height runs along the property line on the south side of the church site. A small outbuilding is present adjacent to the property line immediately southeast of the church site. The property to the east is vacant. The area topography is generally flat, and the site slopes downward to the south at an average gradient of approximately 2 percent. Total relief across the site is approximately 16 feet.

FIELD AND LABORATORY INVESTIGATION

The soils underlying or adjacent to the new building were explored by means of 11 test borings drilled with a four-wheel drive truck-mounted flight-auger to a maximum depth of 51.1 feet below the existing ground surface. Additional borings were drilled in proposed hardscape and parking areas and three borings were drilled in the area of the future portable classroom buildings. Three of the borings were shared between the parking and hardscape areas and either the school building or portable classrooms. The approximate locations of the test borings are shown on Enclosure 1. The soils encountered were examined and visually classified by one of our field engineers. A summary of the soil classifications appears as Enclosure 2. The exploration logs show subsurface conditions at the dates and locations indicated, and may not be representative of other locations and times. The stratification lines presented on the logs represent the approximate boundaries between soil types, and the transitions may be gradual. A hollow-stem auger with an outside diameter of 7.9 inches was utilized. The inside diameter of the auger was 4.3 inches.

Bulk and relatively undisturbed samples were obtained at selected levels within the explorations and returned to our laboratory for testing and evaluation. The driving energy or blow counts required to advance the sampler at each sample interval were noted. Relatively undisturbed soil samples were recovered at various intervals in the borings with a California sampler. The California sampler was a 2.9-inch outside diameter, 2.5-inch inside diameter, split-barrel sampler lined with brass tubes. The sampler was 18 inches long. The sampler conformed to the requirements of ASTM D 3550. A 140-pound automatic trip hammer was lifted hydraulically and was dropped 30 inches for each blow.

Standard penetration tests were performed as Borings 1 and 18 were advanced. The standard penetration test blow counts are shown on the logs for these borings. Standard penetration testing was performed with a 2.0-inch outside diameter, 1.5-inch inside diameter, split-barrel sampler. The sampler was 18 inches long. The sampler was unlined and conformed to the requirements of ASTM D 1586. The sampler is machined to fit liners. A 140-pound automatic trip hammer was lifted hydraulically and was dropped 30 inches for each blow. An efficiency value of 1.0 was assumed for the automatic trip hammer.

Included in our laboratory testing were moisture/density determinations on all undisturbed samples. Optimum moisture content/maximum dry density relationships were established for typical soil types so that the relative compaction of the subsoils could be determined. Consolidation testing was conducted on selected samples to evaluate the compressibility characteristics of the soil. The moisture/density data are presented on the boring logs presented in Enclosure 2. The maximum density and consolidation test results appear on Enclosures 3 and 4, respectively. Direct shear testing was conducted on a selected sample to determine the strength parameters of the soil. A composite sample of potential subgrade soil was tested for gradation, sand equivalent, and "R" value for pavement design purposes. The direct shear and subgrade test results appear on Enclosures 5 and 6, respectively. Chemical testing, comprised of pH, soluble sulfate, chloride, redox potential, and resistivity testing was also performed. These test results are presented in the "Chemical Test Results" section of this report.

SOIL CONDITIONS

Artificial fill consisting of loose to medium dense silty sands with varying amounts of gravel was noted in several test borings to the depths shown on the following table:

Boring No.	Depth of Undocumented Fill (ft.)
18	1.5
19	1.0
20	1.0
22	1.0
23	3.0

Some undocumented fill may be present associated with the residential lot in the northwestern corner of the school site adjacent to Nason Street. The natural soils encountered in our test borings consisted of loose to dense sands and silty sands with an occasional trace of gravel and clay. Relatively porous natural soils were encountered to a depth of 3.5 feet in Boring 20. In general, the upper 12 inches to 2 feet of soil was relatively loose and disturbed due to previous discing. Loose natural soils extend to depths ranging from 3 feet to 15 feet. Very dense granitic bedrock was encountered in Boring 1 at a depth of 40 feet. Free ground water was not encountered in our test borings. The near-surface soils encountered in our test borings are granular, non-plastic materials, and are considered to have a very low expansion potential in accordance with ASTM D 4829.

LIQUEFACTION AND DYNAMIC SETTLEMENT

Liquefaction is a phenomenon that occurs when a soil undergoes a transformation from a solid state to a liquefied condition due to the effects of increased pore-water pressure. Loose saturated soils with particle sizes in the medium sand to silt range are particularly susceptible to liquefaction when subjected to seismic ground shaking. Affected soils lose all strength during liquefaction, and foundation failure can occur.

Free ground water was not encountered at our boring locations. Based on ground water data, our consulting engineering geologist estimates that the shallowest historic depth to ground water is expected to have been greater than 100 feet below existing grade. Due to the depth to ground water, we conclude that the potential for liquefaction is low.

It is anticipated that major earthquake ground shaking will occur during the lifetime of the proposed development from the San Jacinto fault zone, located approximately 3 miles to the northeast of the site. This fault would create the most significant earthshaking event. Based on an earthquake magnitude of 7.8, a peak horizontal ground acceleration of 0.84g is assigned to the site. To evaluate the potential for seismically induced settlement of the subsoils, the soils were analyzed for relative density. The most effective measurement of relative density of sands with respect to seismic settlement potential is standard penetration resistance. Standard penetration tests were performed as Borings 1 and 18 were advanced. In addition, the California sampler blow count data were also evaluated. Equivalent standard penetration test blow counts were estimated for Borings 5, 8 and 20, which were drilled to a depth of 31.5 feet. To convert the number of blow

counts obtained from the California sampler to equivalent standard penetration test blow counts, the California sampler blow counts were multiplied by a factor of 0.7. Boring 3 was drilled to a depth of 31.5 feet but was not used for seismic settlement determination since it was approximately 65 feet from the building.

Using the information presented in Table 3 of Page 73 of the publication by Idriss and Boulanger (Soil Liquefaction During Earthquakes, Idriss and Boulanger, MNO-12, 2008) an analysis was conducted to determine the sampler correction factor Cs. The SPT sampler is machined to fit liners, therefore a correction factor of 1.0 may not be appropriate. Throughout the test borings used for seismic settlement analysis, a calculation was performed to determine the average $(N_1)_{60}$ value from which Cs was subsequently determined. The analyses were initially performed using a Cs value of 1.1. The average Cs value was determined, and was inserted into the "Sampler" equation in Table 3. An average Cs value greater than 1.2 was calculated. To be conservative, a value of 1.2 was used in the analyses.

The standard penetration data provided input for the LiquefyPro Version 4.3 program for seismically induced settlement potential. As indicated in Special Publication 117A (Revised), "Guidelines for Evaluating and Mitigating Seismic Hazards in California, March 2009," a safety factor of 1.3 was used in this analysis. The results of this evaluation are shown on the table below and on Enclosure 8.

Boring No.	Seismic Settlement (In.)
1	5.14
5*	4.75
8*	4.58
18	5.34
20*	4.45

* - Indicates a boring 31.5 feet in depth

Using a minimum building width of 54 feet, based on the seismic settlement values tabulated above, the maximum angular distortion would occur at the location of Boring 18 and was calculated to be 1/243, which is within allowable limits for seismic induced settlement. The potential dynamic settlement for the three shallow borings above a depth of 31.5 feet ranges from 4.45 inches to 4.75 inches. This is a difference of 0.3 inch, which is a relatively low value.

SEISMIC SHEAR-WAVE SURVEY

One seismic line 184 feet in length was performed in the southwestern portion of the site. The results of the seismic shear-wave survey conducted by Terra Geosciences revealed that the average shear-wave velocity ("weighted average") in the upper 100 feet of the survey area is 1,231.0 feet per second. The report states that: "This average velocity classifies the underlying soils to that of Site Class Sc (very stiff/very dense soil and soft rock profile), which has a velocity range from 1,200 to 2,500 ft/sec (CBC 2016, Table 31F-6-1 and ASCE 2010; Table 20.3-1)." The report also states that: "The "weighted average" velocity is computed from a formula that is used by the ASCE (2010; Section 20.4, Equation 20.4-1) to determine the average shear-wave velocity for the upper 100 feet of the subsurface (V100)." Lastly, the report states that: "The shear-wave model displays these calculated layers and associated velocities (feet/second) to a depth of 132 feet where locally sampled." The seismic shear-wave survey report is presented as "Appendix A" in the geologic hazards report by Terra Geosciences.

CONCLUSIONS

The site is underlain by relatively compressible natural soils to a maximum depth of 15 feet. In order to provide uniform soil conditions for structural support, overexcavation and recompaction of portions of the near-surface soils is recommended. During the overexcavation process, some of the soils exposed in the bottom of the excavations may be in a relatively loose condition. Based on the recommended depths of removals and a review of Boussinesq's stress distribution curves, the great majority of the footing loads will dissipate within the mat of compacted fill. Recommendations for foundation design and slabs-on-grade are provided below for a very low (Expansion Index of 0 to 20) expansion potential. Subsequent to remedial grading, the new structure may be safely founded on conventional continuous and/or isolated footings. Detailed recommendations are provided below.

RECOMMENDATIONS

FOUNDATION DESIGN

Where the site is prepared as recommended, the proposed building may be founded on conventional continuous and isolated footings. Footings should be at least 18 inches deep and

should be designed for a maximum safe soil bearing pressure of 2,500 pounds per square foot for dead plus live loads. This value may be increased by one-third for wind and seismic loading.

Continuous footings should be reinforced with at least four No. 4 bars, two placed near the top and two near the bottom of the footings. This recommendation for foundation reinforcement is based on geotechnical considerations. Structural design may require additional foundation reinforcement.

Footings should bear entirely on engineered fill. The natural soil should be overexcavated and recompacted such that the footings bear on at least 2 feet of engineered fill.

SEISMIC DESIGN PARAMETERS

The development of the seismic ground motion parameters is described in detail in the geologic hazards report performed on our behalf by Terra Geosciences. In summary, the California Building Code and the ASCE Standard 7-10 coefficients and factors are provided in the following table:

Factor or Coefficient	***Value***
Latitude	33.9219° N
Longitude	117.1904° W
Mapped S_S	1.87g
Mapped S_1	0.827g
F_a	1.0
F_v	1.3
Final S_{MS}	2.120g
Final S_{M1}	1.160g
Final S_{DS}	1.41g
Final S_{D1}	0.770g
PGA	0.84g
T_L	8 seconds
Site Class	C

Inasmuch as the parameter S_1 is greater than 0.75, a site-specific ground motion analysis was performed by our consulting engineering geologist, Terra Geosciences. The parameters presented in the above table reflect the site-specific analysis.

LATERAL LOADING

For a level backfill surface and cantilever retaining wall conditions, we recommend an active earth pressure of 40 pounds per square foot per foot of depth, exclusive of surcharge loads. For braced walls with level backfill surface conditions, we recommend an at-rest earth pressure of 60 pounds per square foot per foot of depth, exclusive of surcharge loads. For shallow footings, resistance to lateral loads will be provided by passive earth pressure and basal friction. For footings bearing against compacted fill, passive earth pressure may be considered to develop at a rate of 300 pounds per square foot per foot of depth. Basal friction may be computed at 0.4 times the normal dead load. The resistance from basal friction and passive earth pressure may be combined directly without reduction. A backdrain system or weep holes should be provided to prevent buildup of hydrostatic pressure behind retaining walls. The allowable lateral resistance may be increased by one-third for wind and seismic loading.

SLABS-ON-GRADE

Concrete slab-on-grade design recommendations are presented below. The slab-on-grade recommendations assume underlying utility trench backfills and pad subgrade soils have been densified to a relative compaction of at least 90 percent (ASTM D1557).

1. It is our opinion that the compacted fill soils should provide adequate support for concrete slabs-on-grade without the use of a gravel base. The final pad surface should be rolled to provide a smooth dense surface upon which to place the concrete.

2. Slab-on-grade floors that will not receive vehicular traffic should be at least 4 inches thick – structural considerations may require a thicker slab. The concrete slabs-on-grade may be designed using a modulus of subgrade reaction of 250 pounds per cubic inch.

3. It is recommended that concrete slabs-on-grade be reinforced with No. 3 bars at 16-inch centers each way in the middle third of the slab. All slab reinforcement should be supported by chairs or precast concrete blocks to ensure positioning of reinforcement of the slab. Lifting of unsupported reinforcement during concrete placement should not be allowed.

4. Slabs to receive moisture-sensitive floor coverings should be underlain with a moisture vapor retardant membrane, such as 10-mil Stego Wrap or equivalent. The moisture vapor retardant membrane should conform to ASTM E 1745-11 (Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs). The moisture vapor retardant membrane should be lapped into the footing excavation to provide full coverage of the subgrade soils. Punctures and/or holes cut for plumbing should be taped to minimize moisture emissions through the membrane. The project inspector and/or a representative of the geotechnical engineer should inspect the placement of the moisture vapor retardant membrane prior to covering. Installation of the moisture vapor retardant membrane should be performed in accordance with ASTM E 1643-11 (Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs).

5. A 2-inch layer of clean sand (SE>30, no more than 7 percent passing the No. 200 sieve) should be placed over the moisture vapor retardant membrane to promote uniform setting of the concrete. Concrete should be placed on the sand blanket when the sand is damp. Excess moisture should not be allowed to accumulate within the sand blanket prior to concrete placement. At the time of concrete placement, the moisture content of the sand blanket above the moisture vapor retardant membrane should not exceed 2 percent below the optimum moisture content.

6. In lieu of placing the sand blanket described above and to further minimize future moisture vapor emissions through the slabs-on-grade, the slab concrete may be placed directly on the moisture vapor retardant membrane. Placing concrete directly on the moisture vapor retardant membrane will increase shrinkage and curling forces and make finishing more difficult. To accommodate these concerns, the structural engineer should provide appropriate mix design criteria for concrete placed directly on the moisture vapor retardant membrane.

7. We recommend a maximum water-cement ratio of 0.50 for all building slab concrete. Architectural or structural considerations may require the utilization of a lower water-cement ratio. Where slab concrete is placed directly on the moisture vapor retardant membrane without the presence of an intervening layer of absorptive sand, a lower maximum water-cement ratio may be needed.

8. Preparation of the concrete floor slabs should conform to ASTM F 710-11 (Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring) and the manufacturer's recommendations. Moisture vapor emission tests should be performed to verify acceptable moisture emission rates prior to flooring installation.

SITE PREPARATION

We assume that the site will be prepared in accordance with the California Building Code or the current City of Moreno Valley Grading Ordinance. The recommendations presented below are to establish additional grading criteria. These recommendations should be considered preliminary and are subject to modification or expansion based on a geotechnical review of the project foundation and grading plans.

- The existing residence and appurtenances in the northwestern quadrant of the property should be removed. A water well may be located in the northwest corner of the site. This well should be abandoned in conformance with current state requirements. The buried structure situated in the east-central portion of the residential property should be evaluated. All areas to be graded should be stripped of organic matter, man-made obstructions, and other deleterious materials. Underground utilities should be removed and relocated or abandoned. Potholing should be conducted to determine if the foundation for the windmill was removed. If present, the foundation for the windmill should be removed. Old irrigation lines may be encountered during earthwork operations. These irrigation lines should also be removed. The irrigation lines extending offsite should be plugged or capped with concrete at the property lines. All cavities created during site clearing should be cleaned of loose and disturbed soil, shaped to provide access for construction equipment, and backfilled with fill placed and compacted as described below.

- Existing undocumented fill encountered during earthwork operations should be removed from building, retaining wall and pavement and hardscape areas. Up to 3 feet of fill was encountered in our explorations. Deeper deposits of undocumented fill may be encountered in areas that were not explored. Deleterious material should be separated from the removed fill and hauled from the site. The excavated fill should be stockpiled pending replacement or be placed in previously prepared areas.

- Overexcavation

    - Building area and retaining wall footings – Subsequent to removal of any undocumented fill, the natural soils below the bottom of the floor-slabs and building and retaining wall footings should be overexcavated to a depth of 5 feet below existing grade or 5 feet below proposed finished grade, or to a depth below the bottom of isolated footings equal to the width of the footing, or to a depth below the bottom of continuous footings equal to two times the width of the footings, whichever is greatest. The soils exposed in the bottom of the excavations should be evaluated by a representative of the geotechnical engineer. In areas where natural soil exhibiting a relative compaction of at least 85 percent (ASTM D1557) is encountered, the excavation may be terminated as long as there is at least 2 feet of overexcavated and recompacted soil below the bottom of the footings and floor-slabs.

    - Limits of overexcavation – The overexcavation should extend beyond the classroom building area and building and retaining wall footings a horizontal distance at least equal to the depth of overexcavation below the bottom of the foundation elements or 5 feet, whichever distance is greater.

    - Asphalt and portland cement concrete fire lane, parking and driveway areas – Undocumented fill should be removed below fire lane, and parking and driveway areas. The natural soils below these areas should be overexcavated to a depth of 12 inches below existing grade or 12 inches below proposed finished grade, whichever is greater. Finished grade is defined as the top of the subgrade.

- Hardscape areas – Undocumented fill should be removed below proposed hardscape areas. The natural soils below these areas should be scarified to a depth of at least 8 inches below the existing ground surface of finish grade, whichever depth is greater. The scarified soil should be moisture conditioned to near the optimum moisture content, and densified to a relative compaction of at least 90 percent (ASTM D1557).

- Approved subexcavated surfaces and all other surfaces to receive fill should be scarified to a minimum depth of 8 inches, moisture conditioned to near the optimum moisture content, and densified to a relative compaction of at least 90 percent (ASTM D1557).

- The on-site soils should provide adequate quality fill material provided they are free from significant organic matter and other deleterious materials, and are at acceptable moisture contents. Asphalt and portland cement concrete removed during site clearing may be pulverized into fragments not exceeding 3 inches in greatest dimension and incorporated into the fill at all levels. Import fill should be inorganic, granular, non-expansive soil free from rocks or lumps greater than 8 inches in maximum dimension and should exhibit a very low expansion potential (expansion index less than 21), negligible sulfate content (less than 1,000 ppm soluble sulfate by weight), and low corrosion potential. Prior to bringing import fill to the site, the contractor should obtain certification to verify that the proposed import meets the State of California Department of Toxic Substance Control (DTSC) environmental standards. Proposed import should be sampled at the source and tested by this firm for expansion index, soluble sulfate content, and corrosion potential.

- All fill should be placed in 8-inch or less lifts, moisture conditioned to near the optimum moisture content, and densified to a minimum relative compaction of 90 percent (ASTM D 1557).

- The surface of the site should be graded to provide positive drainage away from the structure. Drainage should be directed to established swales and then to appropriate drainage structures to minimize the possibility of erosion. Water should not be allowed to pond adjacent to footings.

SHRINKAGE AND SUBSIDENCE

Volume change in going from cut to fill conditions is anticipated where near-surface grading will occur. Assuming the fill will be compacted to an average relative compaction of 93 percent, an average cut-fill shrinkage of 10 to 15 percent is estimated. Further volume loss will occur through subsidence during preparation of the natural ground surface. Although the contractor's methods and equipment utilized in preparing the natural ground will have a significant effect on the amount of natural ground subsidence that will occur, our experience indicates as much as 0.10 to 0.15 foot of subsidence in areas prepared to receive fill should be anticipated. These values are exclusive of losses due to stripping or removal of subsurface obstructions.

ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE PAVEMENT

A representative sample of near-surface soil at the site has been tested for relevant subgrade properties. A Traffic Index of 5.0 was assumed for the new parking lots and drive areas for conventional vehicular traffic, and a Traffic Index of 6.0 was assumed for the fire lane and where heavier truck or bus traffic will be accommodated. Recommendations for portland cement concrete (PCC) for hardscape areas are also presented below. In conjunction with the test data shown on Enclosure 6, we believe the sections presented on the following tables should provide durable pavement.

Location	TI	"R" Value	Thickness (Inches) Asphalt Concrete	Aggregate Base
Pavement areas for conventional passenger cars and light trucks	5.0	29	2.5	7.0
Pavement areas for the fire lane and heavier trucks and buses	6.0	29	3.0	8.5

Location	TI	"R" Value	Thickness (Inches) Portland Cement Concrete
Pavement areas for conventional passenger cars and light trucks	5.0	29	4.5
Pavement areas for the fire lane and for heavier trucks	6.0	29	7.0
Pavement areas for pedestrian traffic	---	----	3.5

The foregoing thicknesses for portland cement concrete pavement are for unreinforced concrete placed directly on the compacted subgrade soil. Aggregate base is not geotechnically required for the PCC pavement sections; however, if aggregate base is to be utilized for the PCC pavement, we recommend a minimum of 4 inches of aggregate base placed over 12 inches of compacted subgrade soil. The design engineer may wish to provide some level of reinforcement to minimize the width of shrinkage cracks.

For hardscape areas to receive only pedestrian traffic, we recommend the PCC pavement be at least 3.5 inches in thickness and be placed directly on the compacted subgrade soil. Prior to the placement of hardscape concrete, we recommend that the final subgrade surface be scarified to a depth of at least 12 inches, moisture conditioned to within 2 percent of the optimum moisture content, and densified to a minimum relative compaction of 90 percent (ASTM D1557). There are no geotechnical conditions indicating the need for reinforcement of the concrete pavement. The design engineer may wish to provide some level of reinforcement to minimize the width of shrinkage cracks.

Portland cement concrete should be proportioned for a maximum slump of 4 inches and to achieve a minimum compressive strength of 3,000 psi at 28 days. If additional workability is desired, a plasticizing or water-reducing admixture should be utilized in lieu of increasing the water content. Control joints for the 3.5-inch-thick pavement should be spaced no more than 10.5 feet on-center each way. The control joints for the 4.5-inch-thick pavement should be spaced no more than 13.5 feet on-center each way. The control joints for the 7.0-inch-thick pavement should be spaced no more than 21.0 feet on-center each way. Control joints should be established either by hand groovers, plastic inserts, or saw-cutting as soon as the concrete can be cut without dislodging aggregate. Cutting the control joints the day after the concrete pour will likely result in uncontrolled shrinkage cracks. Concrete should not be placed in hot and windy weather. Water curing should commence immediately after the final finishing and should continue for at least 7 days.

The above designs are preliminary and for estimating purposes only. We recommend that during the process of rough grading, observation and additional testing of the actual subgrade soils should be performed. Final pavement design sections can then be determined. The foregoing pavement sections assume that utility trench backfill below all proposed pavement areas will be compacted to at least 90 percent relative compaction. Prior to the placement of aggregate base, we recommend that the final subgrade surface be scarified to a depth of at least 12 inches, moisture conditioned to

within 2 percent of the optimum moisture content, and compacted to a minimum relative compaction of at least 90 percent (ASTM D1557). Aggregate base should be densified to at least 95 percent relative compaction. Suggested specifications for aggregate base material are presented on Enclosure 7. The preparation of the subgrade and compaction of the aggregate base should be monitored by a representative of the geotechnical engineer.

CHEMICAL TEST RESULTS

The chemical test results from samples taken from Borings 1 and 5 between the ground surface and a depth of 8 feet and 10 feet, respectively, are shown on the following table:

Boring 1 at 0 to 8 feet

Analysis	Result	Units
Saturated Resistivity	2400	ohm-cm
Chloride	ND (Not Detected)	ppm
Sulfate	40	ppm
pH	7.3	pH units
Redox Potential	285	mV

Boring 5 at 0 to 10 feet

Analysis	Result	Units
Saturated Resistivity	1050	ohm-cm
Chloride	ND (Not Detected)	ppm
Sulfate	120	ppm
pH	7.4	pH units
Redox Potential	263	mV

The soil tested exhibited negligible soluble sulfate content; therefore, sulfate-resistant concrete will not be required for this project. In Boring 5 the results of the corrosivity testing indicate that the soils tested are detrimentally corrosive to ferrous-metal pipes. Recommendations for protection of buried ferrous metal should be provided by a corrosion engineer.

FOUNDATION AND GRADING PLAN REVIEW

The project foundation and grading plans should be reviewed by the geotechnical engineer. Additional recommendations may be required at that time.

CONSTRUCTION OBSERVATIONS

All grading operations, including the preparation of the natural ground surface, should be observed and compaction tests performed by this firm. No fill should be placed on any prepared surface until that surface has been evaluated by the representative of the geotechnical engineer. The footing excavations for the building and retaining walls should be evaluated by a representative of the geotechnical engineer. All footing excavations should be observed by the geotechnical engineer prior to placement of forms or reinforcing steel.

The conclusions and recommendations presented in this report are based upon the field and laboratory investigation described herein and represent our best engineering judgment. Should conditions be encountered in the field that appear different from those described in this report, we should be contacted immediately in order that appropriate recommendations might be prepared.

Respectfully submitted,

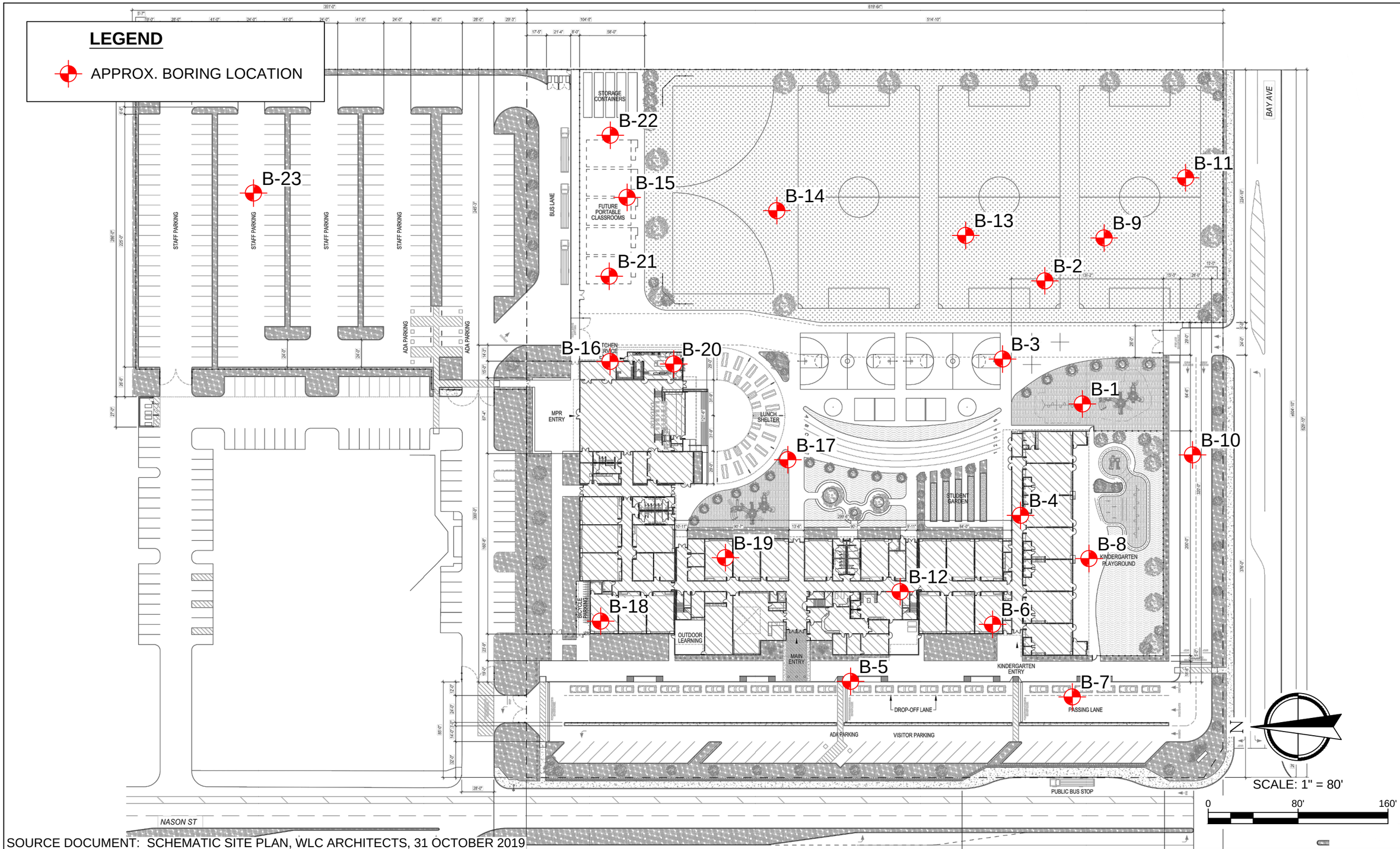
JOHN R. BYERLY, INC.



John R. Byerly, Geotechnical Engineer
President

JRB:GSF:jet

Enclosures:
(1) Plot Plan
(2) Test Boring Logs
(3) Maximum Density Determinations
(4) Consolidation Test Results
(5) Direct Shear Test Data
(6) Subgrade Test Results
(7) Specifications for Aggregate Base
(8) Liquefaction and Dynamic Settlement Analysis
(9) Geologic Hazards Report



SOURCE DOCUMENT: SCHEMATIC SITE PLAN, WLC ARCHITECTS, 31 OCTOBER 2019

John R. Byerly INCORPORATED	GEOTECHNICAL INVESTIGATION	MORENO ELEMENTARY REPLACEMENT SCHOOL NASON STREET AND BAY AVENUE MORENO VALLEY, CALIFORNIA

Enclosure 1
Rpt. No.: 6199
File No.: S-14167

Boring 1

Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0		5	108	10.6	81	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
		8	110	8.1	82			
	9	12	112	7.0	84			
10	17	28	119	11.5	89		SM	Gray-brown silty fine to medium sand with a trace of clay, moist and medium dense
	21	24	115	8.1	86		SM	Gray-brown silty fine to coarse sand, moist and medium dense
20	19	26	118	9.4	88			
	24	33	118	8.3	88			- with gravel below 25.5 feet
30	28	33	119	12.6	89			
	29							
40	82						BR	Brown granitic bedrock, damp and very dense
	100							
50	100							
60								
70								

Total Depth at 50.1 Feet
No Free Ground Water Encountered

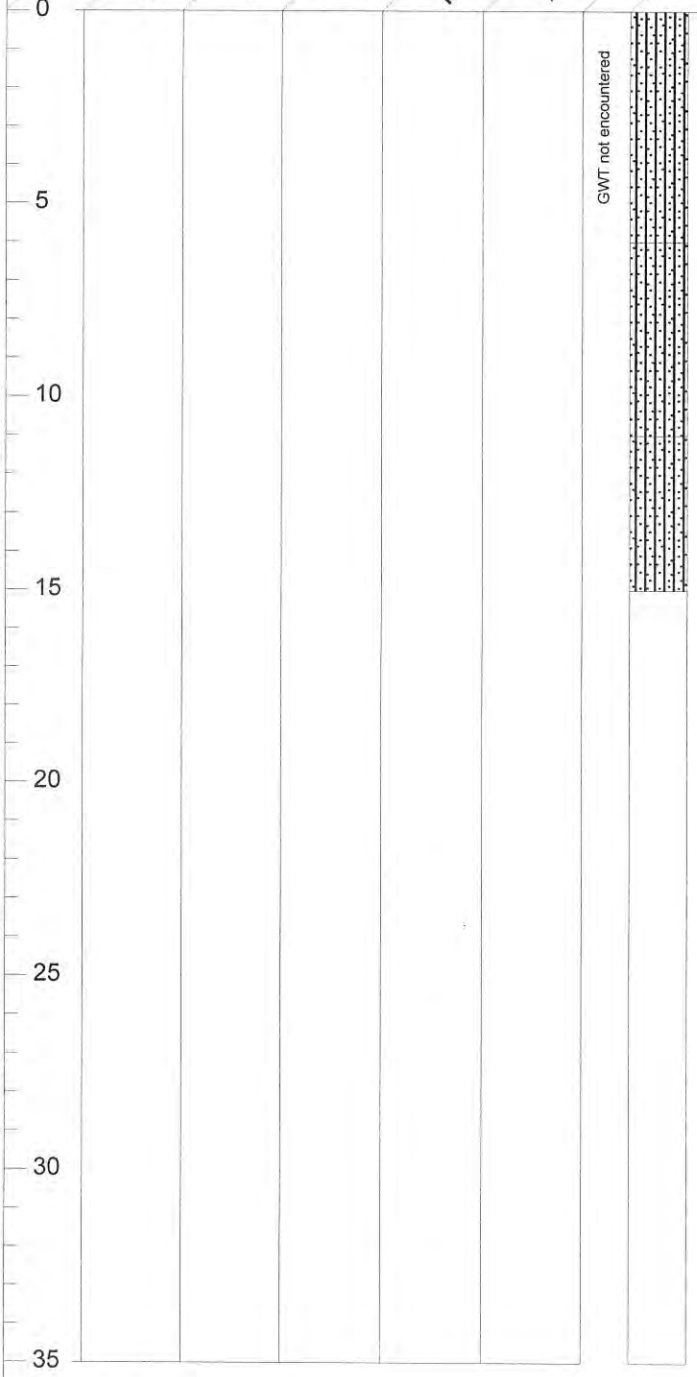
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LOG OF BORING

Boring 2

Depth | Std. Pen. "N" Value | Blows/Ft. | Dry Density (PCF) | Moisture Content (%) | Rel. Compaction (%) | Water Table

Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger



SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
SM	Gray-brown silty fine to medium sand with a trace of clay, moist and medium dense
SM	Gray-brown silty fine to coarse sand, moist and medium dense
	Total Depth at 15.0 Feet No Free Ground Water Encountered

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LOG OF BORING

Boring 3

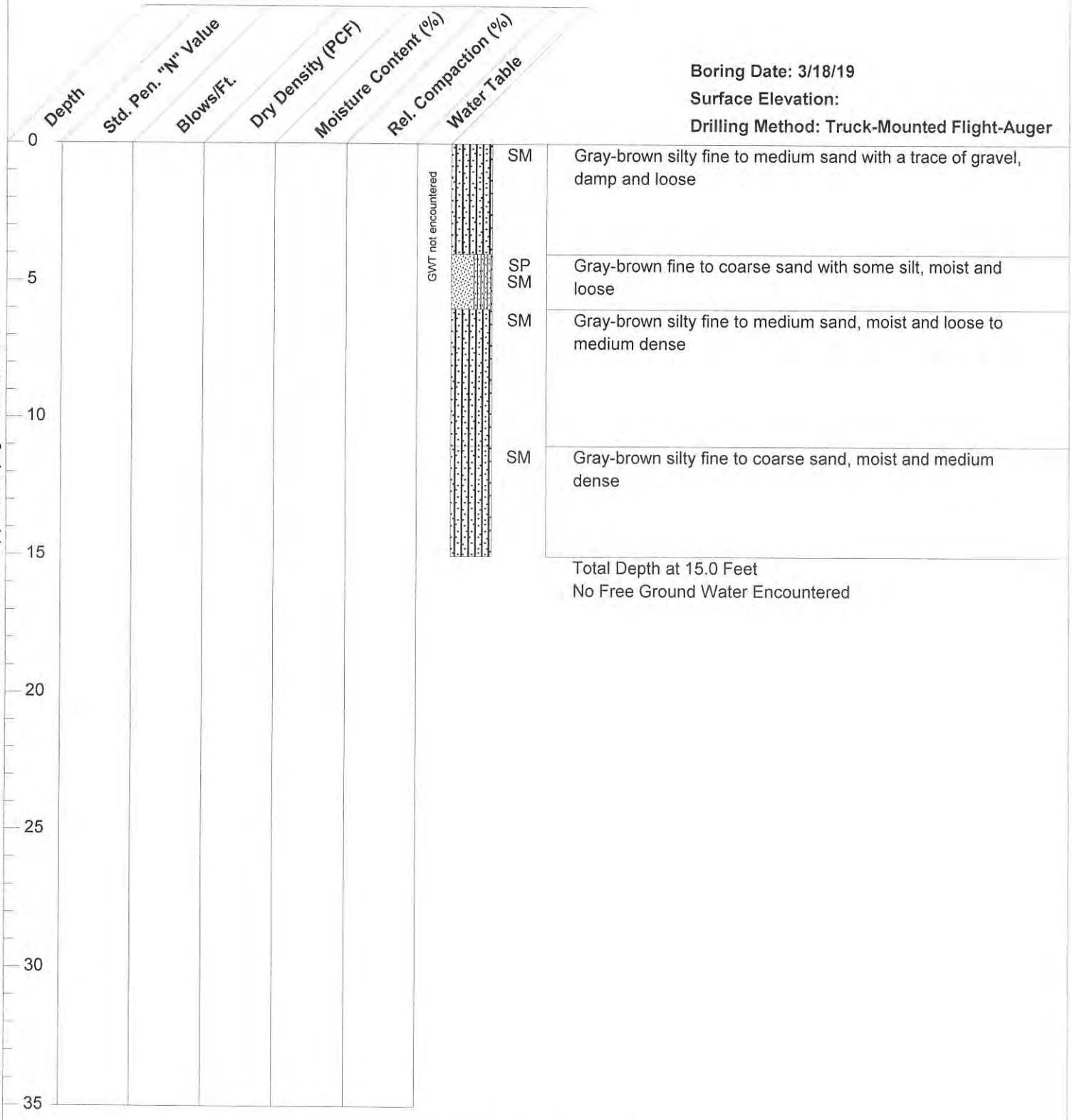
Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	4	111	10.5	83	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
	7	113	7.1	84			
5	11	106	3.7	82		SP	Gray-brown fine to medium sand with a trace of silt, damp and loose
	36	118	7.5	88		SM	Gray-brown fine to medium sand, moist and medium dense
10	30	118	4.4	88			- becoming damp at 10.5 feet
15	33	120	4.4	89		SM	Gray-brown silty fine to coarse sand, damp and medium dense
20	37	117	4.2	---		SP	Gray-brown fine to coarse sand with a trace of silt, damp and medium dense
25	44	118	2.8	90		SP	Gray-brown fine to coarse sand, dry and dense
30	50	119	8.7	91			- becoming moist at 30.0 feet
35							Total Depth at 31.5 Feet No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 4



Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

SM	Gray-brown silty fine to medium sand with a trace of gravel, damp and loose
SP SM	Gray-brown fine to coarse sand with some silt, moist and loose
SM	Gray-brown silty fine to medium sand, moist and loose to medium dense
SM	Gray-brown silty fine to coarse sand, moist and medium dense

Total Depth at 15.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 5

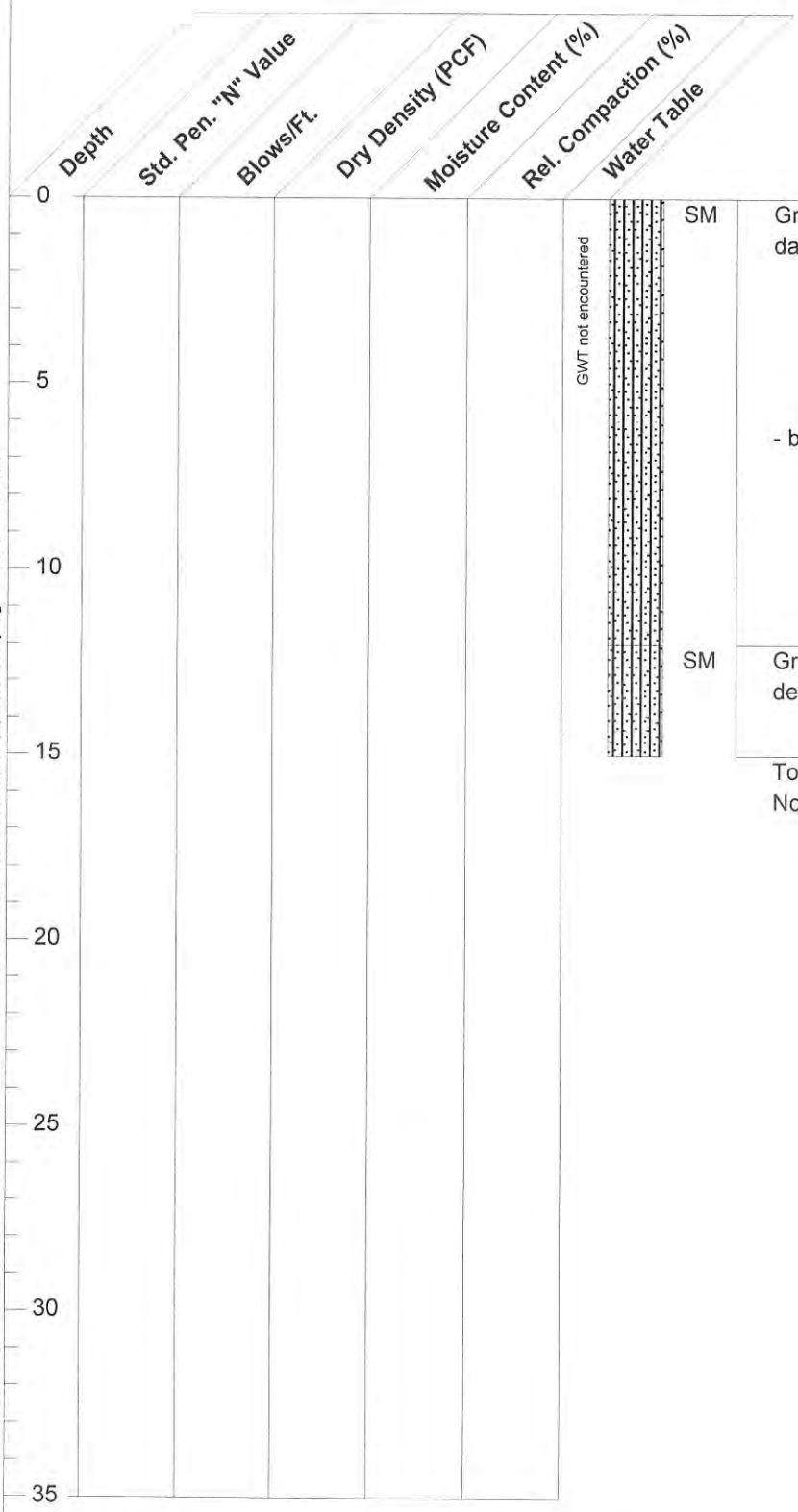
Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	10	107	3.9	80	GWT not encountered	SM	Gray-brown silty fine to medium sand with a trace of gravel, damp and loose
	11	112	4.0	84			
5	8	112	4.7	84			
	14	114	3.5	85			- becoming medium dense at 7.5 feet
10	15	116	6.6	87			
15	24	115	9.2	86		SM	Gray-brown silty fine to coarse sand, moist and medium dense
20	26	114	2.3	87		SP	Gray-brown fine to coarse sand with a trace of silt, dry and medium dense
25	48	120	3.1	92		SP	Gray-brown fine to coarse sand, damp and dense
30	30	---	---	---			- becoming medium dense at 30.5 feet
35							Total Depth at 31.5 Feet No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 6



Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

SM	Gray-brown silty fine to medium sand with a trace of gravel, damp and loose
	- becoming medium dense at 6.0 feet
SM	Gray-brown silty fine to coarse sand, moist and medium dense

Total Depth at 15.0 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 7

Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	4	110	9.8	82	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
	9	110	6.7	82			- becoming damp at 3.5 feet
5	7	109	4.1	81			
	12	111	3.0	86		SP	Gray-brown fine to medium sand with a trace of silt and coarse sand, damp and medium dense
10	12	110	6.8	85			
15	22	117	2.4	---		SP	Gray-brown fine to medium sand, dry and medium dense
20	30	---	1.6	---		SP	Gray-brown fine to coarse sand, dry and medium dense
25	30	114	2.9	87			
30							
35							

Total Depth at 26.5 Feet
No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 8

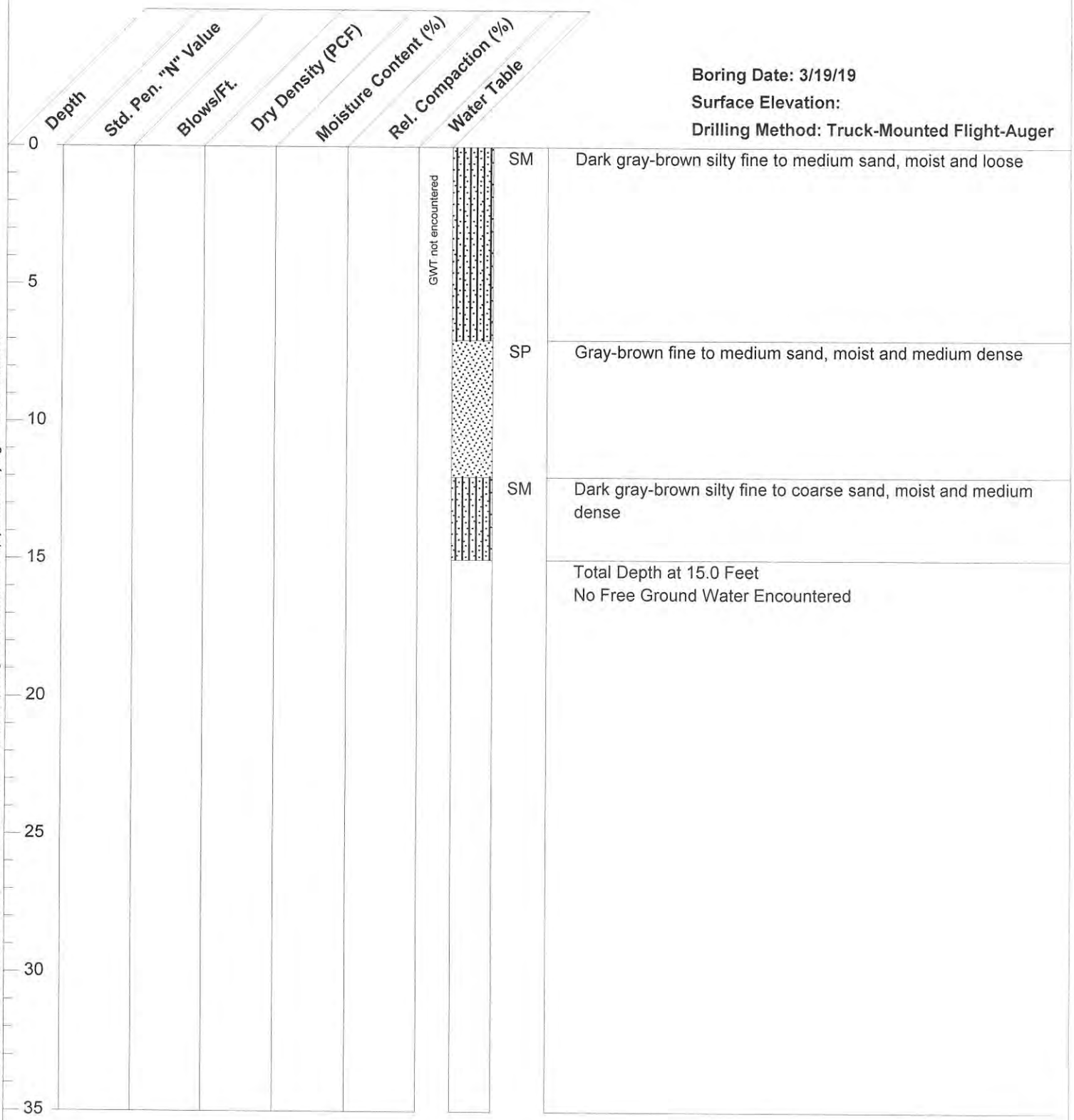
Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	4	107	12.9	80	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, wet and loose
	4	109	7.5	81			- becoming moist at 3.5 feet
5	9	110	5.2	82			- becoming damp at 5.5 feet
	13	108	2.7	83		SP	Gray-brown fine to medium sand with a trace of silt, dry and loose
10	18	110	3.0	85			- becoming damp and medium dense at 10.5 feet
15	26	112	3.2	87			
20	26	116	2.4	89			Gray-brown fine to coarse sand, dry and medium dense
25	40	122	5.6	91			Gray-brown silty fine to coarse sand, damp and dense
30	30	120	8.9	89			- becoming moist and medium dense at 30.0 feet
35							Total Depth at 31.5 Feet No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 9



Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

John R. Byerly, Inc.	**New Elementary School** **Moreno Valley, California**	**Enclosure 2, Page 9** **Rpt. No.: 6199** **File No.: S-14167**

Boring 10

Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	9	103	5.7	77	GWT not encountered	SM	Gray-brown silty fine to medium sand with a trace of gravel, damp and loose
	9	110	5.6	82			
5	7	106	5.0	79			
10							Total Depth at 6.5 Feet No Free Ground Water Encountered
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 11

Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	4	111	10.6	83	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
	3	110	5.9	82			- becoming damp at 3.5 feet
5	6	111	9.2	83			- becoming moist at 5.5 feet
10							Total Depth at 6.5 Feet No Free Ground Water Encountered
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 12

Boring Date: 3/18/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	6	110	8.8	82	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
	8	108	4.8	81			- becoming damp at 3.5 feet
5	7	107	5.1	80			
	14	117	4.2	87			- becoming medium dense at 7.5 feet
10	17	118	5.9	88		SM	Dark gray-brown silty fine to coarse sand, damp and medium dense
15	15	116	6.9	86			
20	18	118	10.2	88			- becoming moist at 20.0 feet
25	12	114	6.6	85			- becoming damp at 25.5 feet
30							Total Depth at 26.5 Feet No Free Ground Water Encountered
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 13

Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	5	105	11.4	78	GWT not encountered	SM	Dark gray-brown silty fine to medium sand, moist and loose
	6	106	9.8	79			
5	17	115	7.4	86			- becoming medium dense at 5.5 feet
	26	128	7.7	---		SM	Gray-brown silty fine to medium sand, moist and medium dense
10	15	113	3.4	86		SP	Gray-brown fine to coarse sand, damp and medium dense
15	30	117	11.7	87		SM	Gray-brown silty fine to medium sand, moist and medium dense
20	26	116	7.7	86		SM	Gray-brown silty fine to coarse sand, moist and medium dense
25	40	119	1.9	89			- becoming dry at 25.0 feet
30							Total Depth at 26.5 Feet No Free Ground Water Encountered
35							

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LOG OF BORING

Boring 14

Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	4	107	9.1	80	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
	10	111	7.0	83			
5	23	116	10.0	87			- becoming medium dense at 5.5 feet
							Total Depth at 6.5 Feet No Free Ground Water Encountered
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 15

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table
0	4	---	12.3	---		GWT not encountered
	9	110	11.2	82		
5	26	119	11.4	89		
10						
15						
20						
25						
30						
35						

Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

SM — Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose

- becoming medium dense at 5.5 feet

Total Depth at 6.5 Feet
No Free Ground Water Encountered

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LOG OF BORING

Boring 16

Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	5	110	7.4	82	GWT not encountered	SM	Dark gray-brown silty fine to medium sand with a trace of gravel, moist and loose
	20	114	7.9	85			- becoming medium dense at 3.5 feet
5	24	119	6.5	89			- becoming damp at 5.5 feet
							Total Depth at 6.5 Feet No Free Ground Water Encountered
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 17

Boring Date: 3/19/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	10	107	5.6	80	GWT not encountered	SM	Gray-brown silty fine to medium sand with a trace of gravel, damp and loose
	6	105	5.7	78			
5	9	110	4.7	82			
							Total Depth at 6.5 Feet No Free Ground Water Encountered
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 18

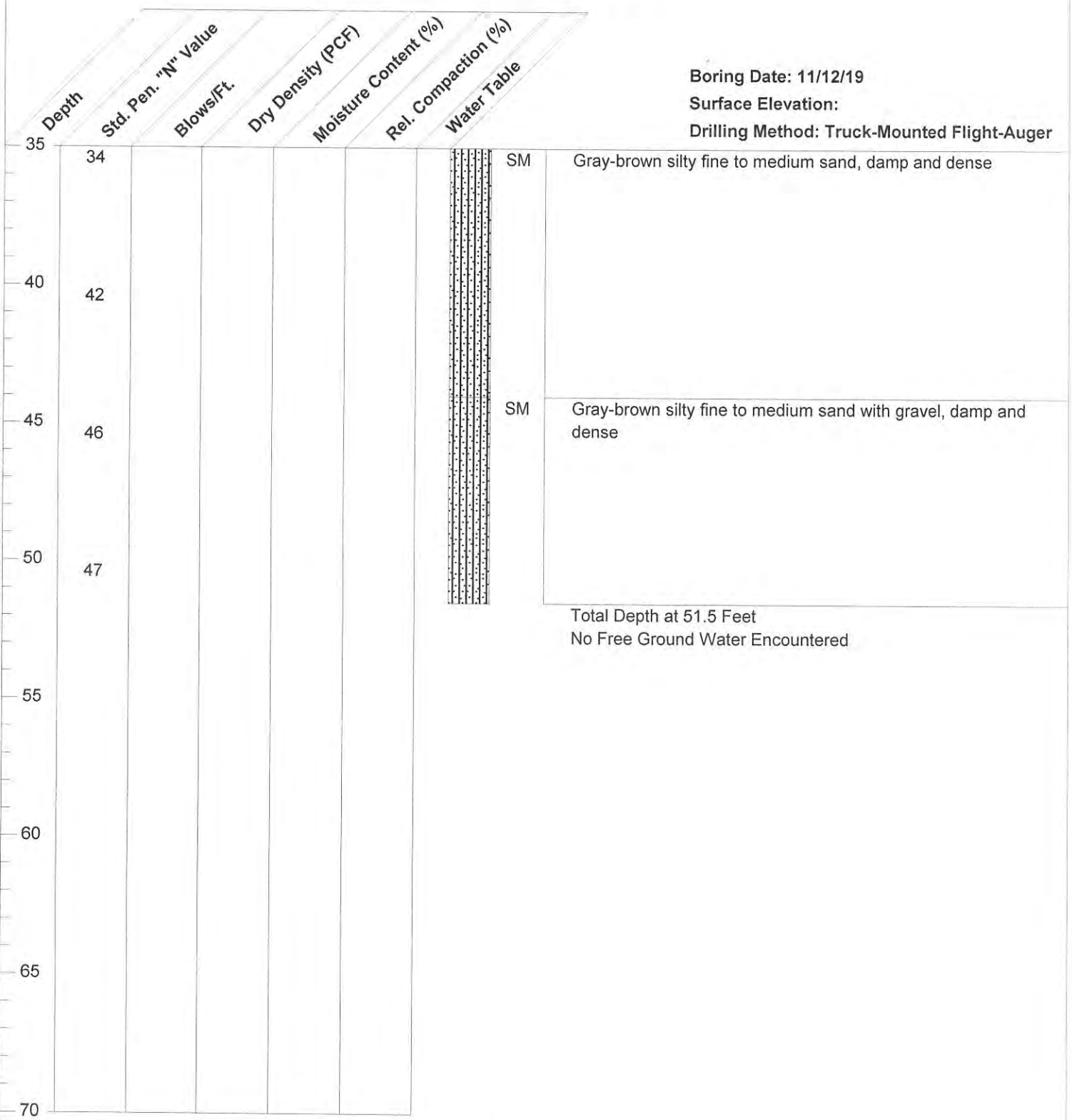
Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value	Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0		15	108	3.5	81	GWT not encountered	SM	Gray-brown silty fine to medium sand with a trace of gravel, dry and loose (FILL)
							SM	Brown silty fine to medium sand with a trace of gravel, damp and loose (ORIGINAL GROUND)
		23	116	5.1	87		SM	Brown silty fine to coarse sand, damp and medium dense
5	15	17	111	4.0	86		SP SM	Gray-brown fine to medium sand with silt, damp and medium dense
10	18	19	---	2.2	---		SP SM	Gray-brown fine to coarse sand with silt, dry and medium dense
15	18	26	---	9.1	---		SM	Brown silty fine to medium sand, moist and medium dense
20	19	29	---	2.1	---		SP	Gray-brown fine to medium sand, dry and medium dense
25	28	38	112	16.0	---			- becoming wet at 25.0 feet
30	31	40	116	2.6	89		SP	Gray-brown fine to coarse sand, dry and medium dense
35								

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LOG OF BORING

Boring 18



Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

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LOG OF BORING

Boring 19

Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	13	103	7.0	78	GWT not encountered	SM	Light gray-brown silty fine to medium sand, damp and loose (FILL)
	10	99	8.2	75		SM	Light red-brown silty fine to medium sand, moist and loose (ORIGINAL GROUND)
5	9	111	4.4	---		SP SM	Gray-brown fine to coarse sand with silt, damp and loose
	13	109	2.2	83		SP	Gray-brown fine to coarse sand, dry and loose
10	11	109	3.4	83			- becoming damp at 10.5 feet
15	19	114	8.4	87		SM	Gray-brown silty fine to medium sand, moist and medium dense
20	21	116	6.6	88			- becoming damp at 20.0 feet
25	31	112	2.3	---		SP	Gray-brown fine to medium sand, dry and medium dense
30							Total Depth at 26.5 Feet No Free Ground Water Encountered
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 20

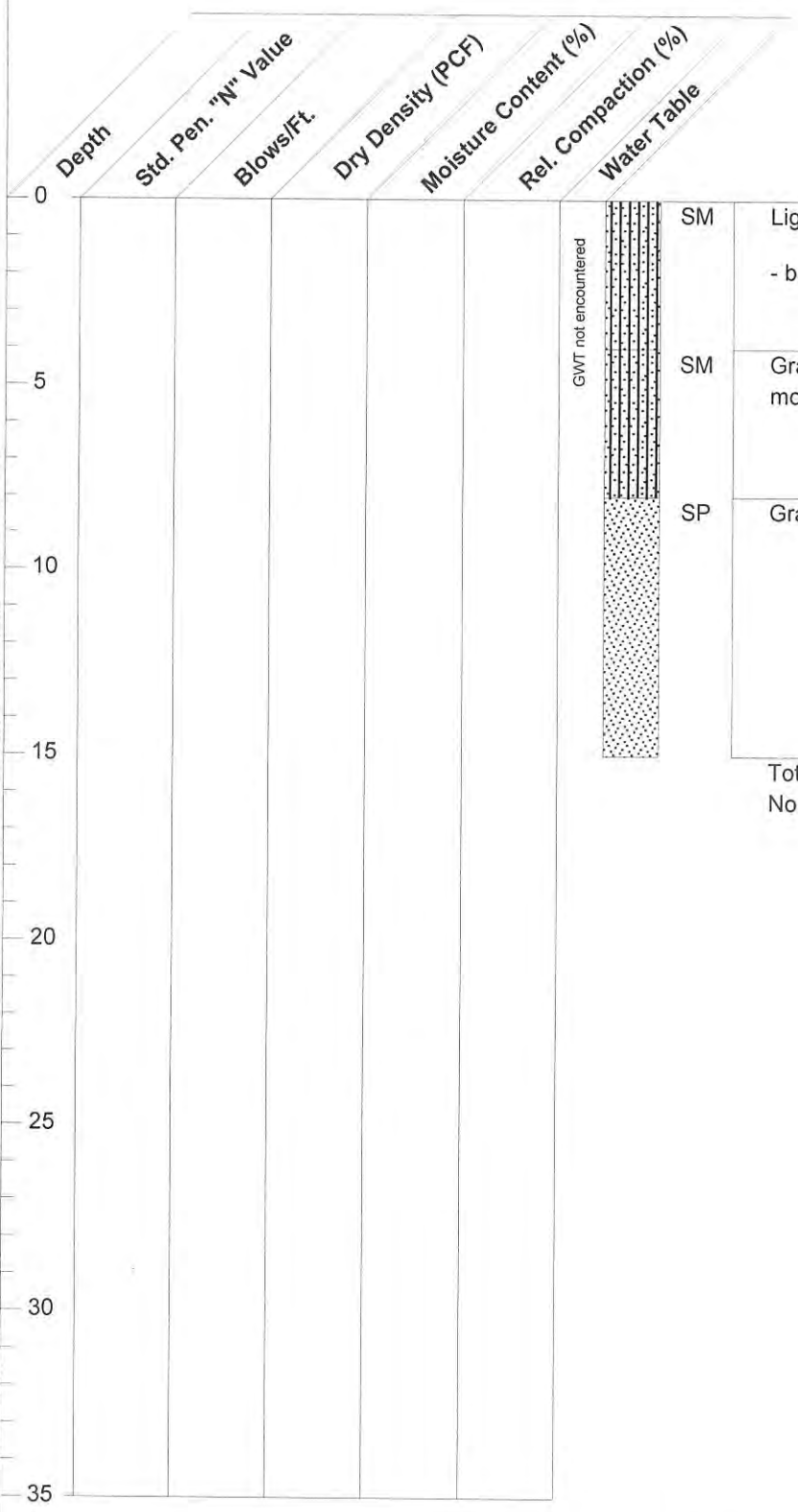
Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0					GWT not encountered	SM	Light gray-brown silty fine to medium sand with a trace of gravel, dry and loose (FILL)
	20	110	5.9	84		SM	Brown to red-brown silty fine to medium sand, porous, damp and loose (ORIGINAL GROUND)
	31	115	6.8	88			- becoming medium dense with less porosity at 3.5 feet
5	19	117	6.2	87		SM	Gray-brown silty fine to medium sand with a trace of gravel, damp and medium dense
	23	118	7.8	88			- becoming moist at 7.5 feet
10	22	118	9.2	88			
15	27	114	7.5	85			
20	34	113	2.8	---		SP	Gray-brown fine to medium sand, dry and medium dense
25	33	110	2.8	---			
30	20	---	8.2	---		SM	Brown silty fine to medium sand, moist and medium dense
35							Total Depth at 31.5 Feet No Free Ground Water Encountered

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LOG OF BORING

Boring 21



Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

0	SM	Light gray-brown silty fine to medium sand, dry and loose - becoming damp at 1.5 feet
5	SM	Gray-brown silty fine to medium sand with a trace of gravel, moist and loose
10	SP	Gray-brown fine to medium sand, moist and medium dense
15		Total Depth at 15.0 Feet No Free Ground Water Encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 22

Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	14	106	7.0	81	GWT not encountered	SM	Light gray-brown silty fine to medium sand, dry and loose (FILL)
						SM	Brown silty fine to medium sand, moist and loose (ORIGINAL GROUND)
	17	111	9.4	85			- becoming medium dense at 3.5 feet
5	21	114	10.2	87			
	15	116	5.9	88		SP SM	Gray-brown fine to coarse sand with silt, damp and medium dense
10	25	116	2.8	88			- becoming dry at 10.5 feet
15	37	115	2.9	87			
20	24	---	15.0	---		SM	Brown silty fine to medium sand, wet and medium dense
25							Total Depth at 21.5 Feet No Free Ground Water Encountered
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\S-14167 (Rpt. No. 6199).log Date: 11/25/2019

LOG OF BORING

Boring 23

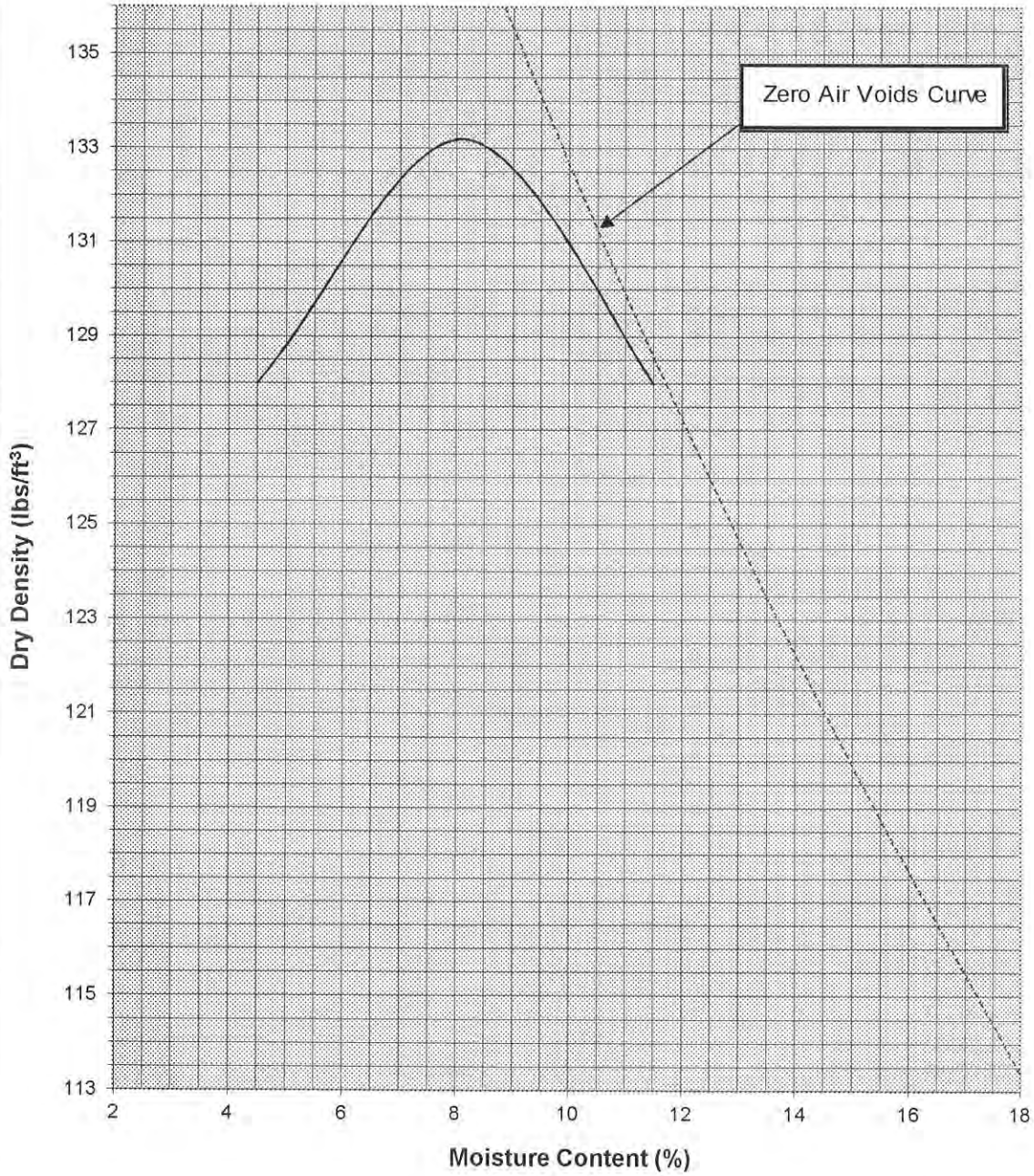
Boring Date: 11/12/19
Surface Elevation:
Drilling Method: Truck-Mounted Flight-Auger

Depth	Std. Pen. "N" Value Blows/Ft.	Dry Density (PCF)	Moisture Content (%)	Rel. Compaction (%)	Water Table		
0	25	114	4.1	87	GWT not encountered	SM	Light gray-brown silty fine to medium sand, dry and loose (FILL)
							- becoming damp and medium dense at 1.5 feet
	16	107	7.2	82			Gray-brown silty fine to medium sand, damp to moist and loose (ORIGINAL GROUND)
5	11	109	6.8	83			
							Total Depth at 6.5 Feet
							No Free Ground Water Encountered
10							
15							
20							
25							
30							
35							

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECTS-14167 (Rpt. No. 6199).log Date: 11/25/2019

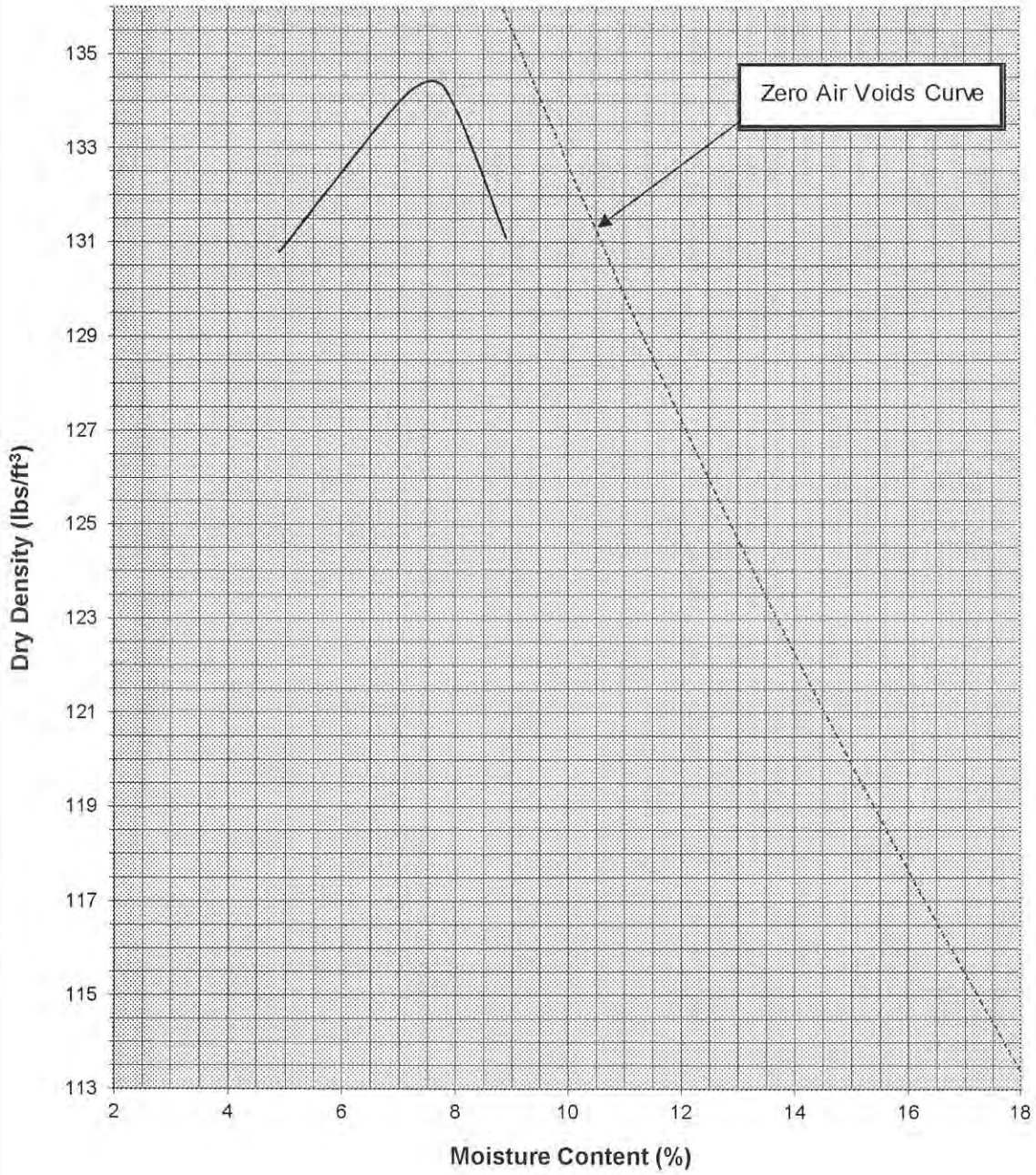
LOG OF BORING

Moisture/Density Relationship
ASTM D1557 (Method A)



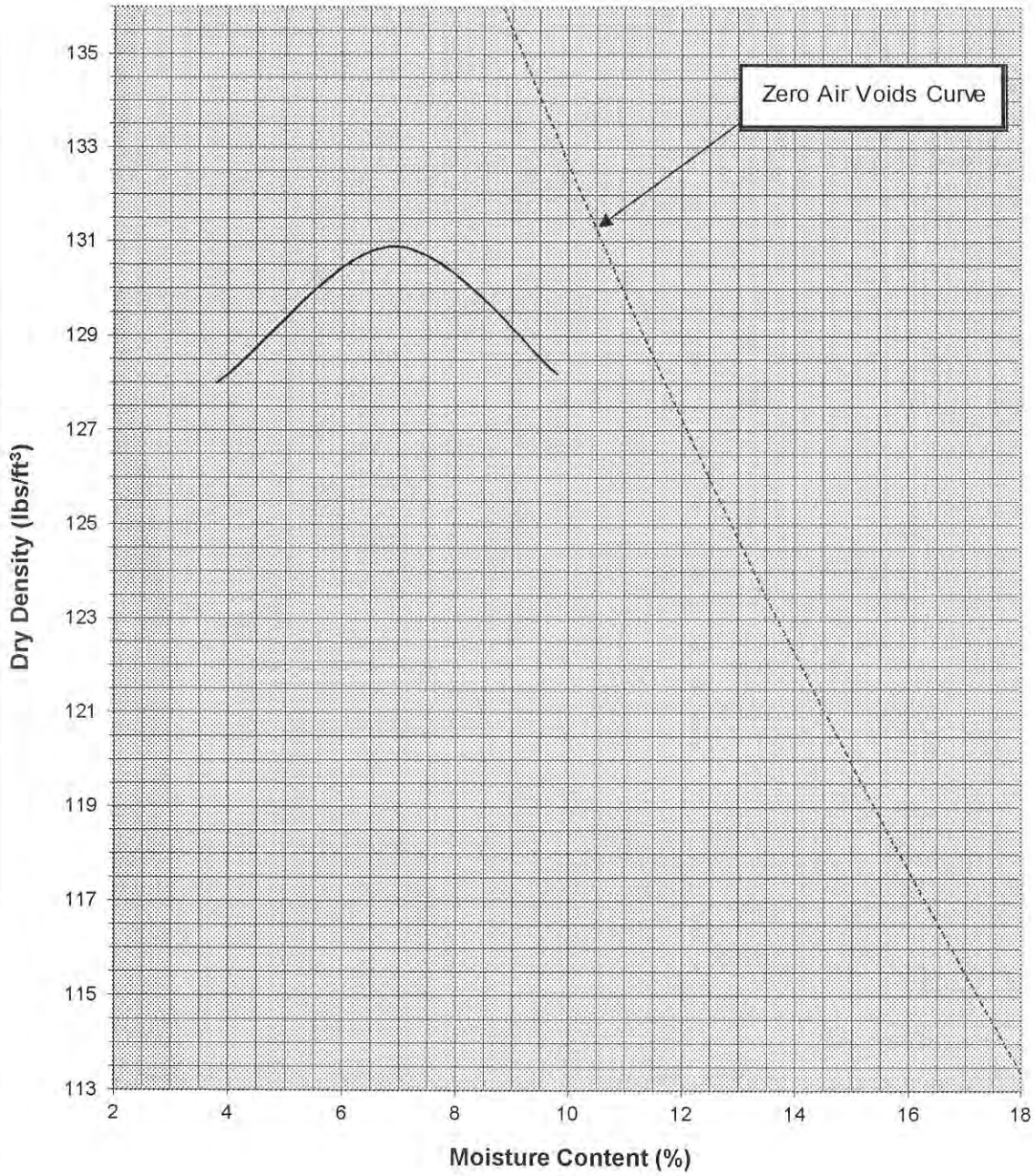
Boring No.	B-1
Depth (ft.)	10.5
Optimum Moisture (%)	8.1
Maximum Dry Density (pcf)	133.2
Soil Classification	Gray-brown silty fine to medium sand with a trace of clay (SM)

Moisture/Density Relationship
ASTM D1557 (Method A)



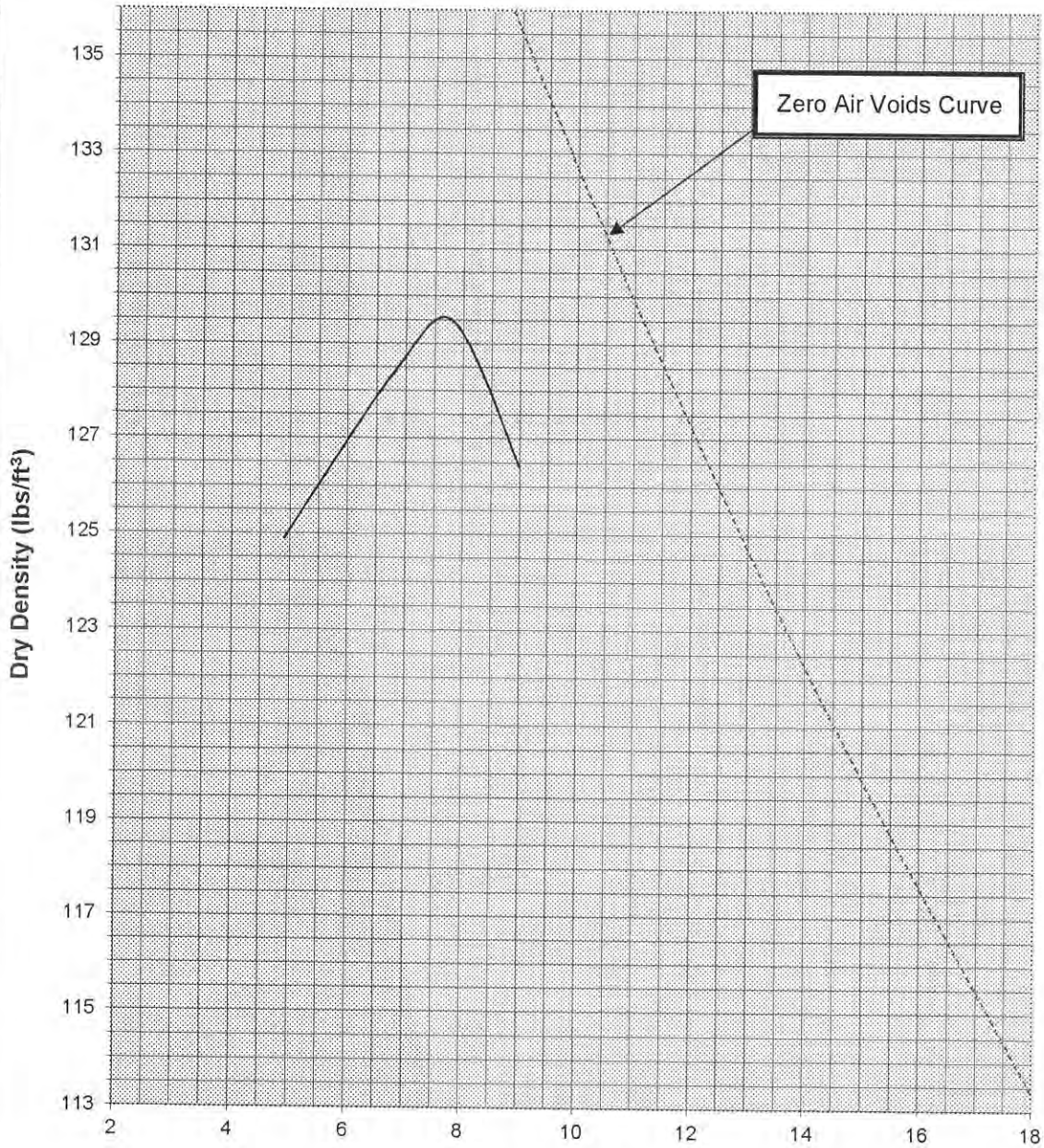
Boring No.	B-1
Depth (ft.)	20.5
Optimum Moisture (%)	7.8
Maximum Dry Density (pcf)	134.3
Soil Classification	Gray-brown silty fine to coarse sand (SM)

Moisture/Density Relationship
ASTM D1557 (Method A)



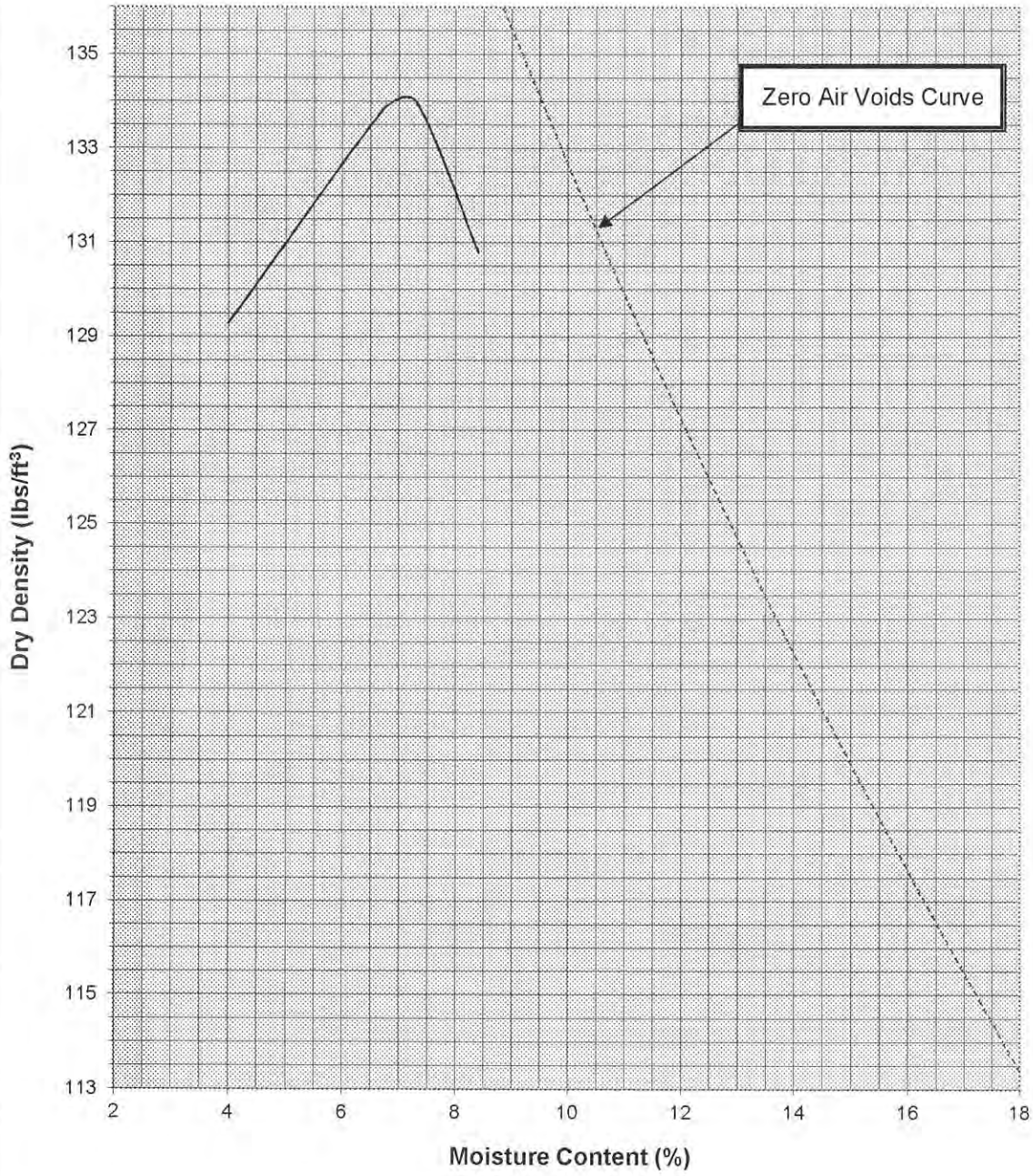
Boring No.	B-5
Depth (ft.)	25.5
Optimum Moisture (%)	6.9
Maximum Dry Density (pcf)	130.9
Soil Classification	Gray-brown fine to coarse sand (SP)

Moisture/Density Relationship
ASTM D1557 (Method A)



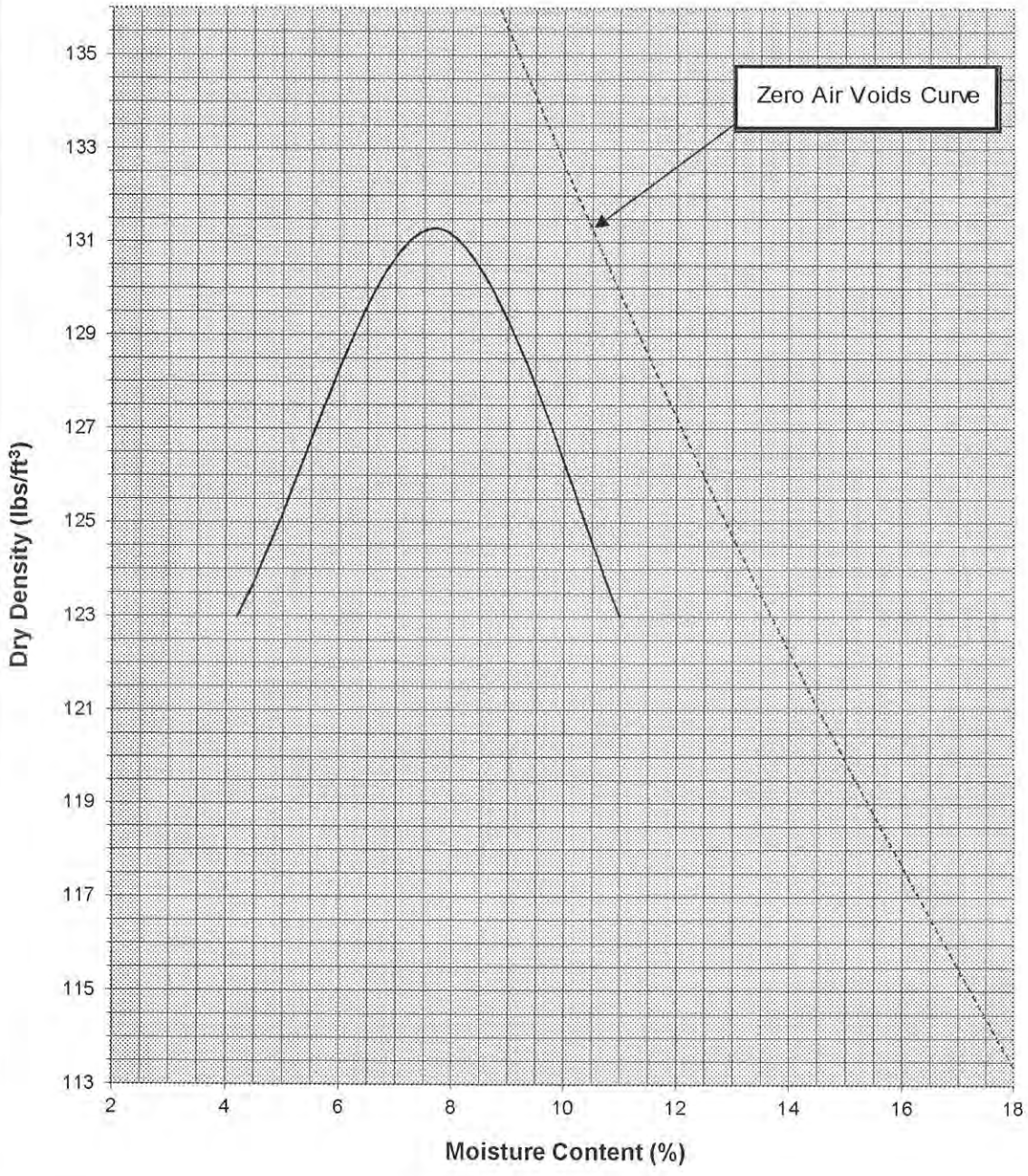
Boring No.	B-8
Depth (ft.)	7.5
Optimum Moisture (%)	7.7
Maximum Dry Density (pcf)	129.6
Soil Classification	Gray-brown fine to medium sand with a trace of silt (SP)

Moisture/Density Relationship
ASTM D1557 (Method A)



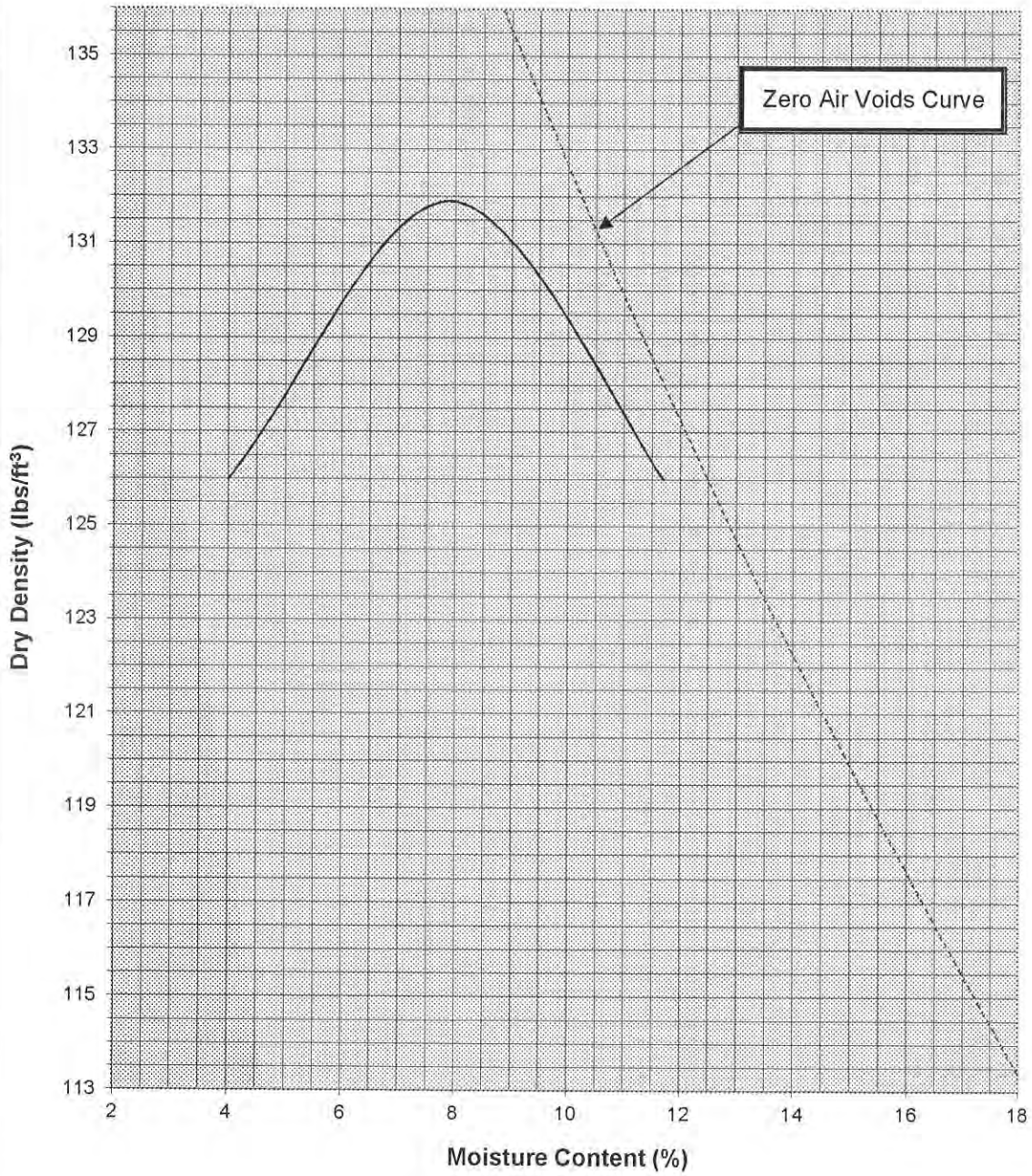
Boring No.	B-14
Depth (ft.)	1.5
Optimum Moisture (%)	7.2
Maximum Dry Density (pcf)	134.1
Soil Classification	Dark gray-brown silty f-m sand with a trace of gravel (SM)

Moisture/Density Relationship
ASTM D1557 (Method A)



Boring No.	B-20
Depth (ft.)	1.5
Optimum Moisture (%)	7.7
Maximum Dry Density (pcf)	131.3
Soil Classification	Brown silty fine to medium sand (SM)

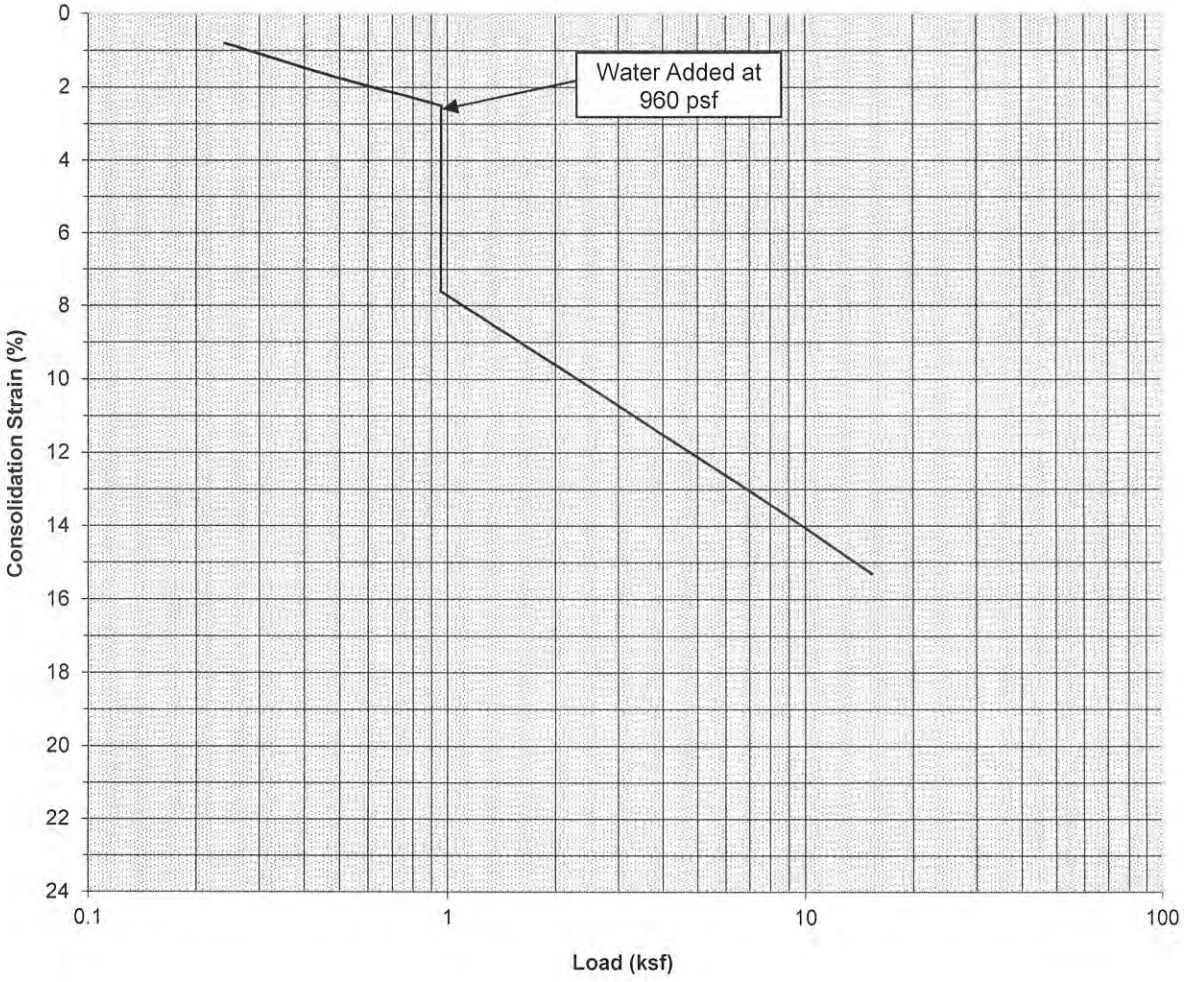
Moisture/Density Relationship
ASTM D1557 (Method A)



Boring No.	B-22
Depth (ft.)	7.5
Optimum Moisture (%)	7.9
Maximum Dry Density (pcf)	131.9
Soil Classification	Gray-brown fine to coarse sand with silt (SP-SM)

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Consolidation Test Results

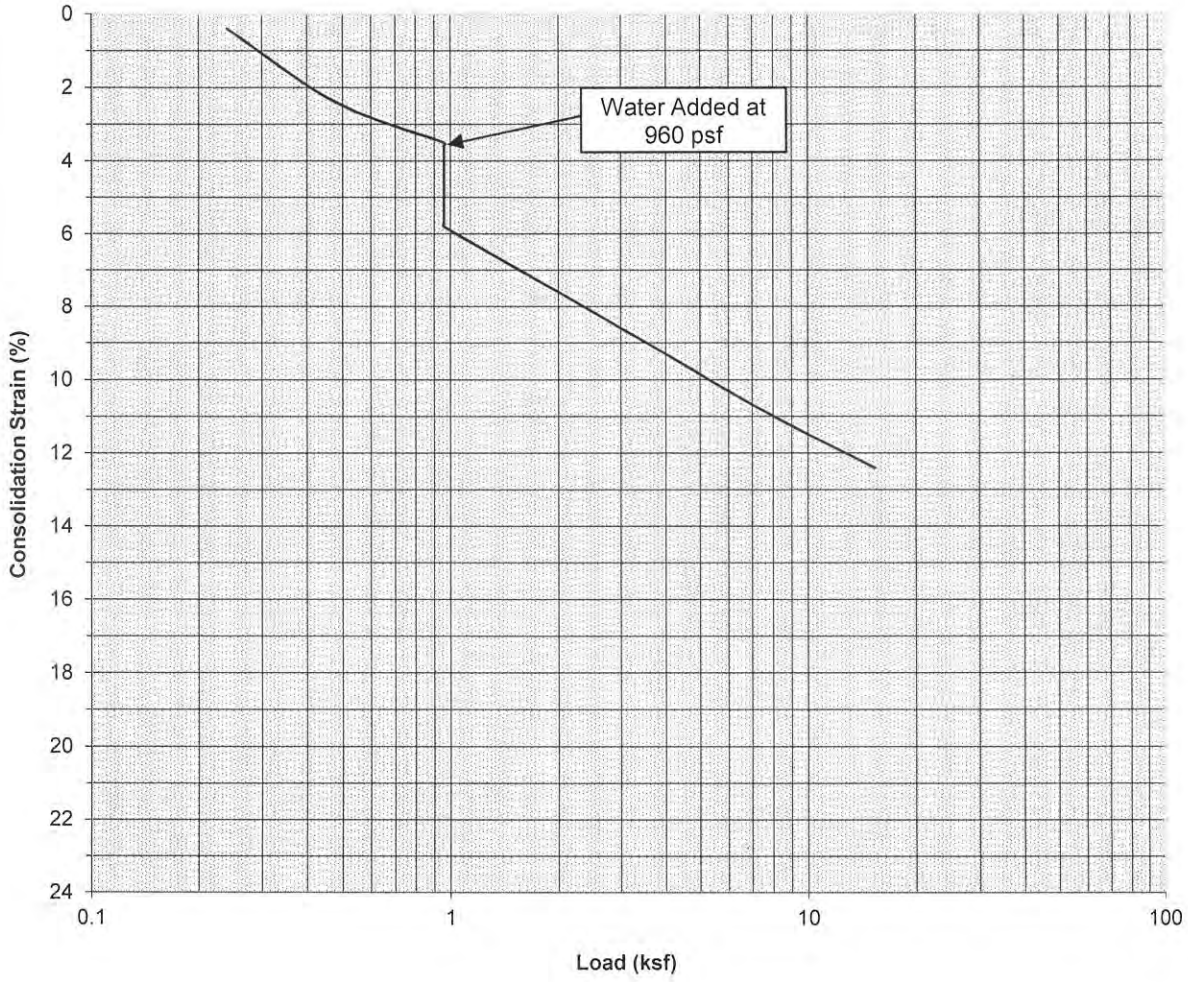


Classification: SM

Boring Number:	B-1	Initial Moisture Content (%)	7.0
Depth (ft)	5.5	Final Moisture Content (%)	15.4
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	112
Specimen Thickness (in)	1.0		

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Consolidation Test Results

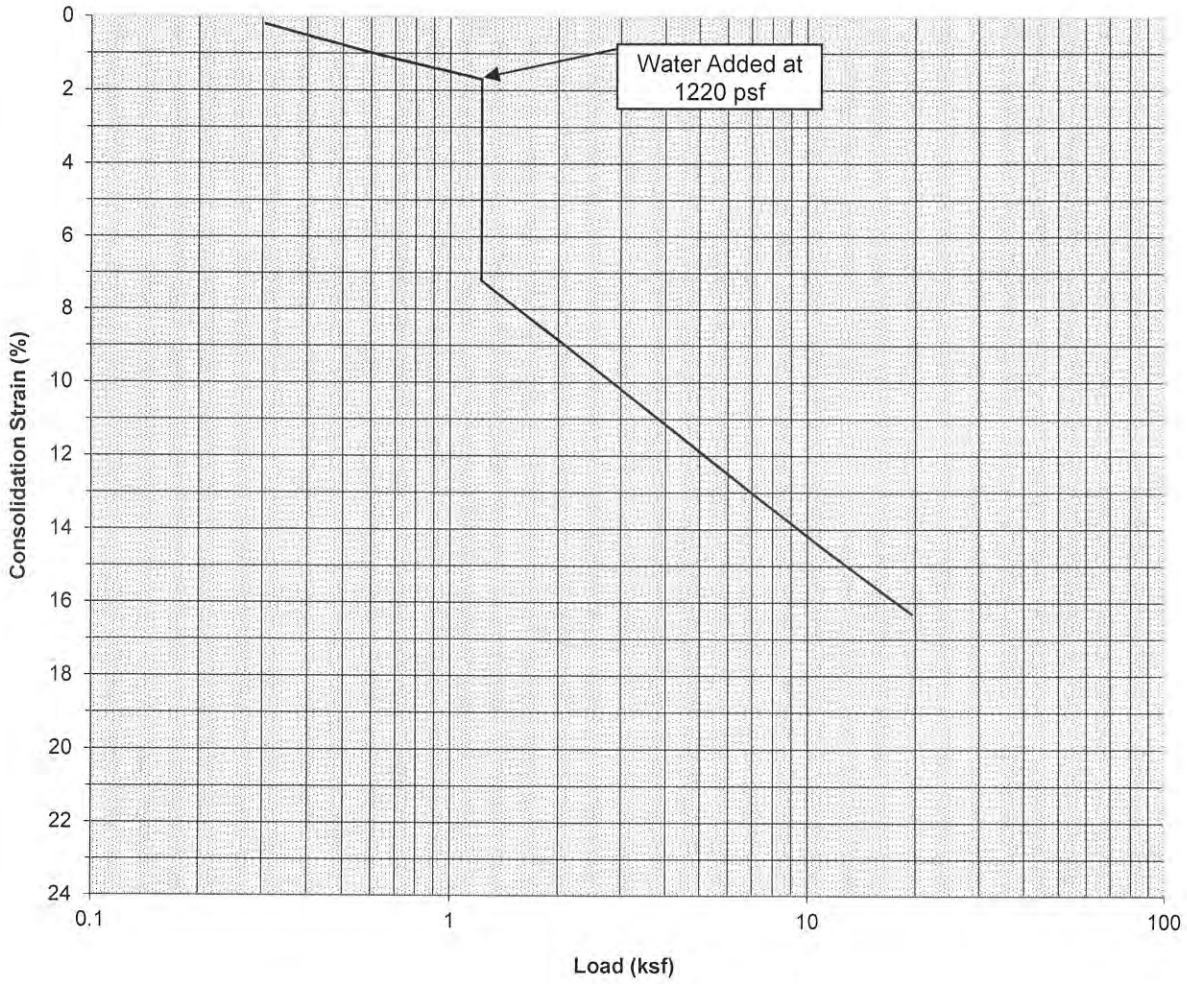


Classification: SM

Boring Number:	B-3	Initial Moisture Content (%)	7.1
Depth (ft)	3.5	Final Moisture Content (%)	14.5
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	113
Specimen Thickness (in)	1.0		

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Consolidation Test Results

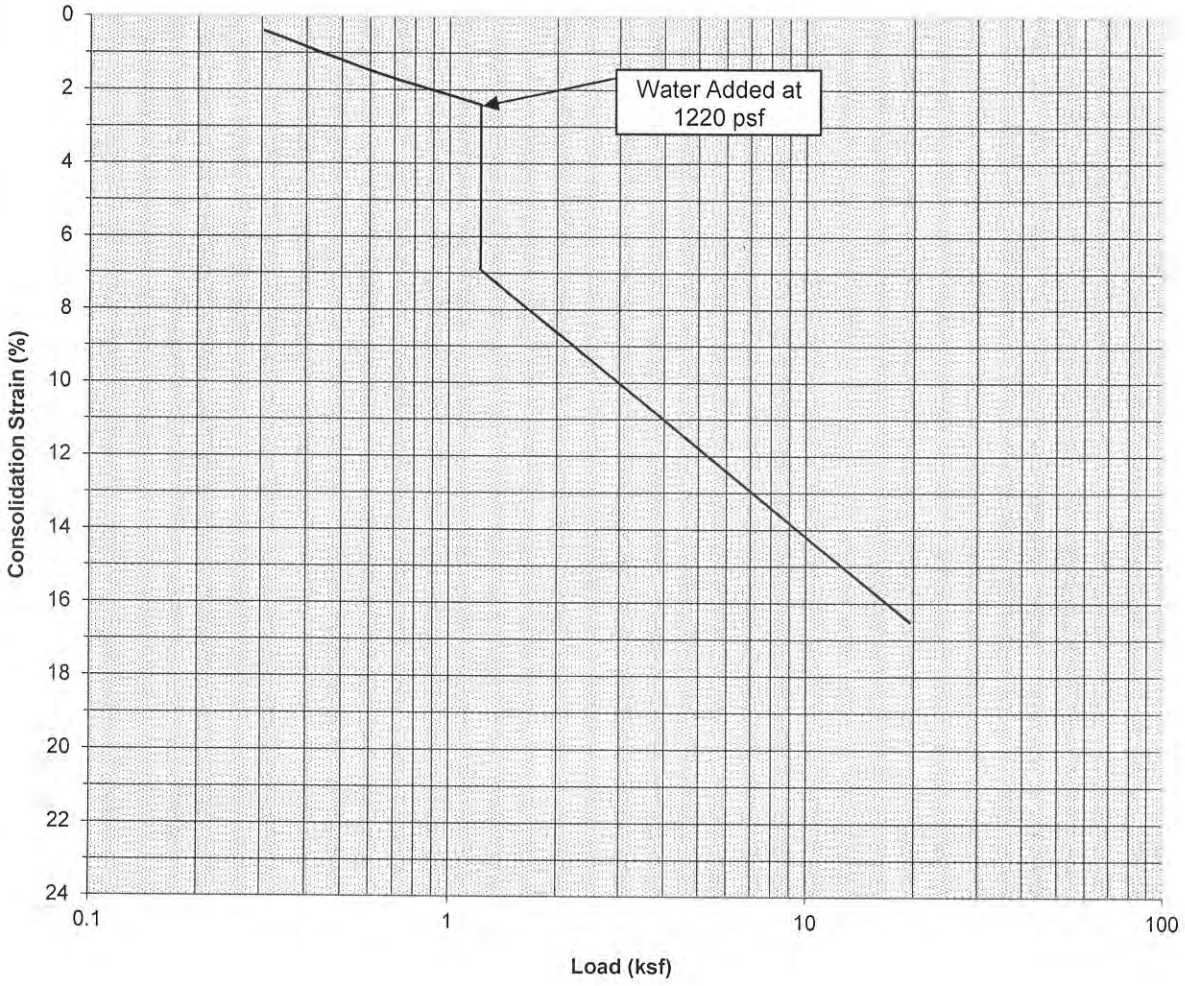


Classification: SM

Boring Number:	B-5	Initial Moisture Content (%)	4.7
Depth (ft)	5.5	Final Moisture Content (%)	16.1
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	112
Specimen Thickness (in)	1.0		

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Consolidation Test Results



Classification: SM

Boring Number:	B-8	Initial Moisture Content (%)	7.5
Depth (ft)	3.5	Final Moisture Content (%)	16.5
Specimen Diameter (in)	2.4	Initial Dry Density (pcf)	109
Specimen Thickness (in)	1.0		

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DIRECT SHEAR TESTS

Test Boring No.	Depth of Sample (Ft.)	Angle of Internal Friction (°)	Cohesion (PSF)
B-12	7.5	31	50

Enclosure 5
Rpt. No.: 6199
File No.: S-14167

RESULTS OF SUBGRADE SOIL TESTS

California Department of Transportation Test Methods 202, 217, & 301
ASTM Designations C136 and D2419

PROJECT: New Elementary School

Sample No.	Location	Percent Passing Sieve Size: 3"	2½"	2"	1½"	1"	3/4"	1/2"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	Sand Equiv.
1	B-1 at 0-5'						100	99	99	97	92	87	78	72	57	41	13

STABILOMETER "R" VALUE

Sample No.		1	
Moisture Content (%)	11.0	11.9	12.8
Dry Density (lbs./cu. ft.)	124.3	121.5	119.5
Exudation Pressure (psi)	553	310	158
Expansion Pressure (psf)	64.95	38.97	17.32
"R" Value	40	29	20
"R" Value at 300 PSI Exudation		29	

Enclosure 6
Rpt. No.: 6199
File No.: S-14167

John R. Byerly
INCORPORATED

SUGGESTED SPECIFICATIONS FOR CLASS II BASE

Sieve Size	Percent Finer Than
1 Inch	100
3/4 Inch	90 - 100
No. 4	35 - 60
No. 30	10 - 30
No. 200	2 - 9
Sand Equivalent (Minimum)	25
"R" Value (minimum) at 300 psi Exudation	78

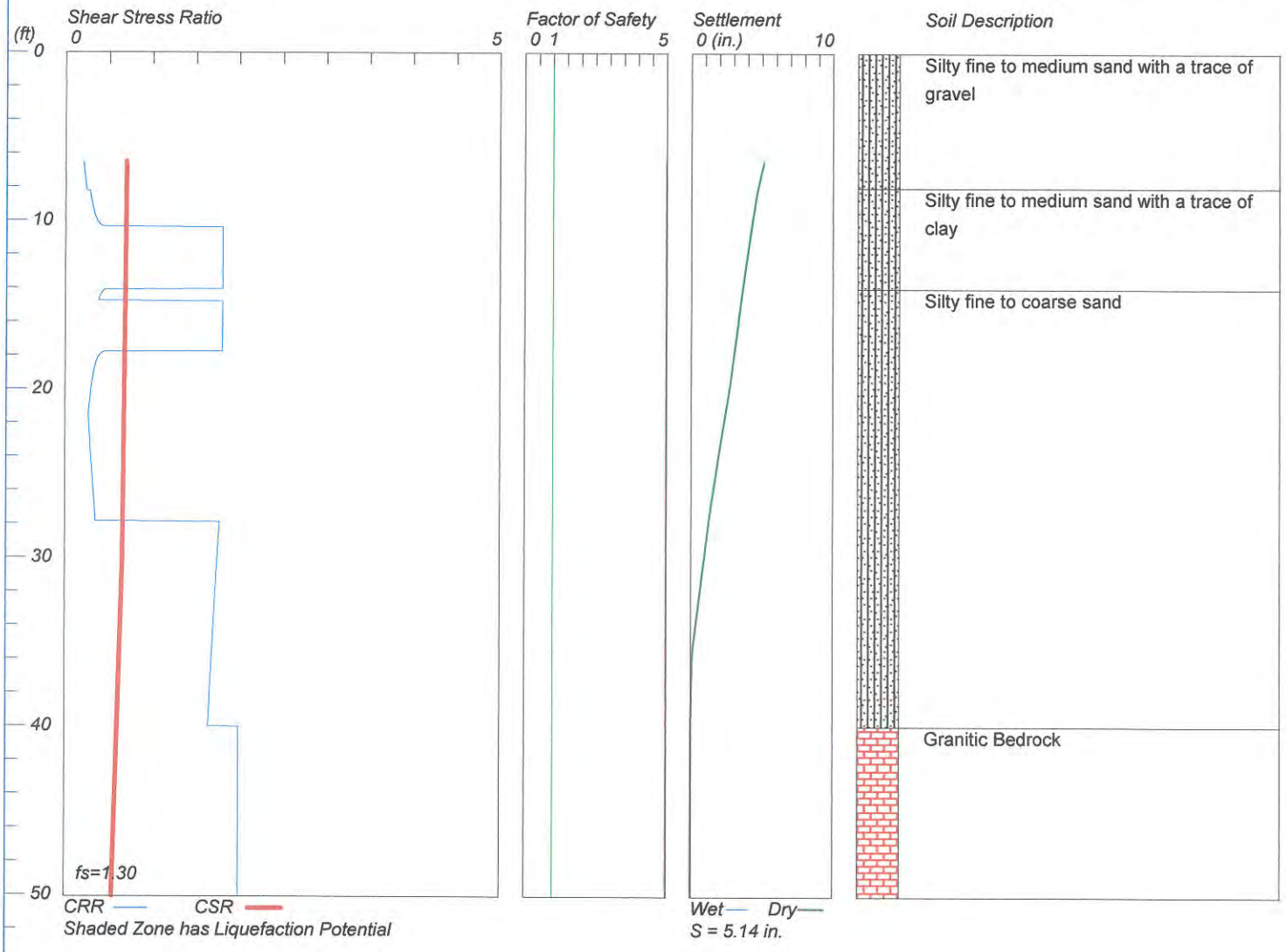
Enclosure 7
Rpt. No.: 6199
File No.: S-14167

LIQUEFACTION ANALYSIS

MORENO ELEMENTARY SCHOOL REPLACEMENT

Hole No.=B-1 Water Depth=100 ft

Magnitude=7.8
Acceleration=0.84g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 1.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Surface Elev.=
Hole No.=B-1
Depth of Hole= 50.1 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration= 0.84 g
Earthquake Magnitude= 7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Input Data:

Depth ft	SPT	Gamma pcf	Fines %
6.5	9.0	120.0	25.0
11.5	17.0	133.0	30.0
16.5	21.0	124.0	15.0
21.5	19.0	129.0	15.0
26.5	24.0	128.0	15.0
31.5	28.0	134.0	15.0
35.0	29.0	135.0	15.0
40.0	82.0	135.0	NoLiq
45.0	100.0	135.0	NoLiq
50.0	100.0	135.0	NoLiq

Output Results:
Settlement of saturated sands=0.00 in.
Settlement of dry sands=5.14 in.
Total settlement of saturated and dry sands=5.14 in.
Differential Settlement=2.570 to 3.392 in.

Depth ft	CRRm	CSRfs w/fs	F.S.	S_sat. in.	S_dry in.	S_all in.

6.50	0.21	0.70	5.00	0.00	5.14	5.14
7.50	0.23	0.70	5.00	0.00	4.86	4.86
8.50	0.29	0.70	5.00	0.00	4.62	4.62
9.50	0.33	0.69	5.00	0.00	4.43	4.43
10.50	1.81	0.69	5.00	0.00	4.24	4.24
11.50	1.81	0.69	5.00	0.00	4.07	4.07
12.50	1.81	0.69	5.00	0.00	3.90	3.90
13.50	1.81	0.69	5.00	0.00	3.73	3.73
14.50	0.40	0.69	5.00	0.00	3.57	3.57
15.50	1.81	0.68	5.00	0.00	3.41	3.41
16.50	1.81	0.68	5.00	0.00	3.27	3.27
17.50	1.81	0.68	5.00	0.00	3.12	3.12
18.50	0.35	0.68	5.00	0.00	2.95	2.95
19.50	0.31	0.68	5.00	0.00	2.80	2.80
20.50	0.29	0.68	5.00	0.00	2.62	2.62
21.50	0.27	0.67	5.00	0.00	2.43	2.43
22.50	0.28	0.67	5.00	0.00	2.23	2.23
23.50	0.29	0.67	5.00	0.00	2.04	2.04
24.50	0.30	0.67	5.00	0.00	1.86	1.86
25.50	0.32	0.67	5.00	0.00	1.68	1.68
26.50	0.33	0.67	5.00	0.00	1.51	1.51
27.50	0.35	0.66	5.00	0.00	1.34	1.34
28.50	1.77	0.66	5.00	0.00	1.18	1.18
29.50	1.76	0.66	5.00	0.00	1.03	1.03
30.50	1.75	0.66	5.00	0.00	0.88	0.88
31.50	1.74	0.65	5.00	0.00	0.73	0.73
32.50	1.73	0.65	5.00	0.00	0.59	0.59
33.50	1.72	0.64	5.00	0.00	0.44	0.44
34.50	1.70	0.63	5.00	0.00	0.30	0.30
35.50	1.69	0.63	5.00	0.00	0.16	0.16
36.50	1.68	0.62	5.00	0.00	0.08	0.08
37.50	1.67	0.62	5.00	0.00	0.05	0.05
38.50	1.66	0.61	5.00	0.00	0.03	0.03
39.50	1.65	0.61	5.00	0.00	0.01	0.01
40.50	2.00	0.60	5.00	0.00	0.00	0.00
41.50	2.00	0.59	5.00	0.00	0.00	0.00
42.50	2.00	0.59	5.00	0.00	0.00	0.00
43.50	2.00	0.58	5.00	0.00	0.00	0.00
44.50	2.00	0.58	5.00	0.00	0.00	0.00
45.50	2.00	0.57	5.00	0.00	0.00	0.00
46.50	2.00	0.56	5.00	0.00	0.00	0.00
47.50	2.00	0.56	5.00	0.00	0.00	0.00
48.50	2.00	0.55	5.00	0.00	0.00	0.00
49.50	2.00	0.55	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

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LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 1.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Input Data:

Surface Elev.=
Hole No.=B-1
Depth of Hole=50.1 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration=0.84 g
Earthquake Magnitude=7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Depth ft	SPT	Gamma pcf	Fines %
6.5	9.0	120.0	25.0
11.5	17.0	133.0	30.0
16.5	21.0	124.0	15.0
21.5	19.0	129.0	15.0
26.5	24.0	128.0	15.0
31.5	28.0	134.0	15.0
35.0	29.0	135.0	15.0
40.0	82.0	135.0	NoLiq
45.0	100.0	135.0	NoLiq
50.0	100.0	135.0	NoLiq

Output Results: (Interval = 1.00 ft)

CSR Calculation:

Depth ft	gamma pcf	sigma tsf	gamma' pcf	sigma' tsf	rd	CSR	fs (user)	CSRfs w/fs

6.50	120.0	0.390	120.0	0.390	0.98	0.54	1.3	0.70
7.50	122.6	0.451	122.6	0.451	0.98	0.54	1.3	0.70
8.50	125.2	0.513	125.2	0.513	0.98	0.54	1.3	0.70
9.50	127.8	0.576	127.8	0.576	0.98	0.53	1.3	0.69
10.50	130.4	0.640	130.4	0.640	0.98	0.53	1.3	0.69
11.50	133.0	0.706	133.0	0.706	0.97	0.53	1.3	0.69
12.50	131.2	0.772	131.2	0.772	0.97	0.53	1.3	0.69
13.50	129.4	0.837	129.4	0.837	0.97	0.53	1.3	0.69
14.50	127.6	0.902	127.6	0.902	0.97	0.53	1.3	0.69
15.50	125.8	0.965	125.8	0.965	0.96	0.53	1.3	0.68
16.50	124.0	1.027	124.0	1.027	0.96	0.52	1.3	0.68
17.50	125.0	1.090	125.0	1.090	0.96	0.52	1.3	0.68
18.50	126.0	1.152	126.0	1.152	0.96	0.52	1.3	0.68
19.50	127.0	1.216	127.0	1.216	0.95	0.52	1.3	0.68
20.50	128.0	1.279	128.0	1.279	0.95	0.52	1.3	0.68
21.50	129.0	1.344	129.0	1.344	0.95	0.52	1.3	0.67
22.50	128.8	1.408	128.8	1.408	0.95	0.52	1.3	0.67
23.50	128.6	1.472	128.6	1.472	0.95	0.52	1.3	0.67
24.50	128.4	1.537	128.4	1.537	0.94	0.51	1.3	0.67
25.50	128.2	1.601	128.2	1.601	0.94	0.51	1.3	0.67
26.50	128.0	1.665	128.0	1.665	0.94	0.51	1.3	0.67
27.50	129.2	1.729	129.2	1.729	0.94	0.51	1.3	0.66
28.50	130.4	1.794	130.4	1.794	0.93	0.51	1.3	0.66
29.50	131.6	1.860	131.6	1.860	0.93	0.51	1.3	0.66
30.50	132.8	1.926	132.8	1.926	0.93	0.51	1.3	0.66
31.50	134.0	1.992	134.0	1.992	0.92	0.50	1.3	0.65
32.50	134.3	2.059	134.3	2.059	0.91	0.50	1.3	0.65
33.50	134.6	2.127	134.6	2.127	0.90	0.49	1.3	0.64
34.50	134.9	2.194	134.9	2.194	0.89	0.49	1.3	0.63
35.50	135.0	2.261	135.0	2.261	0.89	0.48	1.3	0.63
36.50	135.0	2.329	135.0	2.329	0.88	0.48	1.3	0.62
37.50	135.0	2.396	135.0	2.396	0.87	0.47	1.3	0.62
38.50	135.0	2.464	135.0	2.464	0.86	0.47	1.3	0.61
39.50	135.0	2.531	135.0	2.531	0.85	0.47	1.3	0.61
40.50	135.0	2.599	135.0	2.599	0.84	0.46	1.3	0.60
41.50	135.0	2.666	135.0	2.666	0.84	0.46	1.3	0.59
42.50	135.0	2.734	135.0	2.734	0.83	0.45	1.3	0.59
43.50	135.0	2.801	135.0	2.801	0.82	0.45	1.3	0.58
44.50	135.0	2.869	135.0	2.869	0.81	0.44	1.3	0.58
45.50	135.0	2.936	135.0	2.936	0.80	0.44	1.3	0.57
46.50	135.0	3.004	135.0	3.004	0.80	0.43	1.3	0.56
47.50	135.0	3.071	135.0	3.071	0.79	0.43	1.3	0.56
48.50	135.0	3.139	135.0	3.139	0.78	0.43	1.3	0.55
49.50	135.0	3.206	135.0	3.206	0.77	0.42	1.3	0.55

CSR is based on water table at 100.0 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma'	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
6.50	9.00	1.50	0.75	0.390	1.60	16.21	25.0	4.80	21.01	0.23
7.50	10.60	1.50	0.75	0.451	1.49	17.76	26.0	5.04	22.80	0.25
8.50	12.20	1.50	0.85	0.513	1.40	21.73	27.0	5.28	27.01	0.32
9.50	13.80	1.50	0.85	0.576	1.32	23.19	28.0	5.52	28.71	0.36
10.50	15.40	1.50	0.85	0.640	1.25	24.54	29.0	5.76		

30.30	2.00								
	11.50	17.00	1.50	0.85	0.706	1.19	25.79	30.0	6.00
31.79	2.00								
	12.50	17.80	1.50	0.85	0.772	1.14	25.83	27.0	5.28
31.11	2.00								
	13.50	18.60	1.50	0.85	0.837	1.09	25.92	24.0	4.56
30.48	2.00								
	14.50	19.40	1.50	0.85	0.902	1.05	26.05	21.0	3.84
29.89	0.44								
	15.50	20.20	1.50	0.95	0.965	1.02	29.30	18.0	3.12
32.42	2.00								
	16.50	21.00	1.50	0.95	1.027	0.99	29.52	15.0	2.40
31.92	2.00								
	17.50	20.60	1.50	0.95	1.090	0.96	28.12	15.0	2.40
30.52	2.00								
	18.50	20.20	1.50	0.95	1.152	0.93	26.81	15.0	2.40
29.21	0.38								
	19.50	19.80	1.50	0.95	1.216	0.91	25.59	15.0	2.40
27.99	0.34								
	20.50	19.40	1.50	0.95	1.279	0.88	24.44	15.0	2.40
26.84	0.32								
	21.50	19.00	1.50	0.95	1.344	0.86	23.36	15.0	2.40
25.76	0.30								
	22.50	20.00	1.50	0.95	1.408	0.84	24.02	15.0	2.40
26.42	0.31								
	23.50	21.00	1.50	0.95	1.472	0.82	24.66	15.0	2.40
27.06	0.32								
	24.50	22.00	1.50	0.95	1.537	0.81	25.29	15.0	2.40
27.69	0.34								
	25.50	23.00	1.50	0.95	1.601	0.79	25.90	15.0	2.40
28.30	0.35								
	26.50	24.00	1.50	0.95	1.665	0.78	26.51	15.0	2.40
28.91	0.37								
	27.50	24.80	1.50	0.95	1.729	0.76	26.87	15.0	2.40
29.27	0.39								
	28.50	25.60	1.50	1.00	1.794	0.75	28.67	15.0	2.40
31.07	2.00								
	29.50	26.40	1.50	1.00	1.860	0.73	29.04	15.0	2.40
31.44	2.00								
	30.50	27.20	1.50	1.00	1.926	0.72	29.40	15.0	2.40
31.80	2.00								
	31.50	28.00	1.50	1.00	1.992	0.71	29.76	15.0	2.40
32.16	2.00								
	32.50	28.29	1.50	1.00	2.059	0.70	29.57	15.0	2.40
31.97	2.00								
	33.50	28.57	1.50	1.00	2.127	0.69	29.39	15.0	2.40
31.79	2.00								
	34.50	28.86	1.50	1.00	2.194	0.68	29.22	15.0	2.40
31.62	2.00								
	35.50	34.30	1.50	1.00	2.261	0.66	34.21	23.6	4.46
38.67	2.00								
	36.50	44.90	1.50	1.00	2.329	0.66	44.13	40.8	7.20
51.33	2.00								
	37.50	55.50	1.50	1.00	2.396	0.65	53.77	58.0	7.20
60.97	2.00								
	38.50	66.10	1.50	1.00	2.464	0.64	63.16	75.2	7.20
70.36	2.00								
	39.50	76.70	1.50	1.00	2.531	0.63	72.31	92.4	7.20
79.51	2.00								
	40.50	83.80	1.50	1.00	2.599	0.62	77.97	NoLiq	7.20
85.17	2.00								
	41.50	87.40	1.50	1.00	2.666	0.61	80.28	NoLiq	7.20
87.48	2.00								

42.50	91.00	1.50	1.00	2.734	0.60	82.55	NoLiq	7.20
89.75	2.00							
43.50	94.60	1.50	1.00	2.801	0.60	84.78	NoLiq	7.20
91.98	2.00							
44.50	98.20	1.50	1.00	2.869	0.59	86.96	NoLiq	7.20
94.16	2.00							
45.50	100.00	1.50	1.00	2.936	0.58	87.53	NoLiq	7.20
94.73	2.00							
46.50	100.00	1.50	1.00	3.004	0.58	86.55	NoLiq	7.20
93.75	2.00							
47.50	100.00	1.50	1.00	3.071	0.57	85.59	NoLiq	7.20
92.79	2.00							
48.50	100.00	1.50	1.00	3.139	0.56	84.66	NoLiq	7.20
91.86	2.00							
49.50	100.00	1.50	1.00	3.206	0.56	83.77	NoLiq	7.20
90.97	2.00							

CRR is based on water table at 100.0 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.8:

Depth ft	sigC' tsf	CRR7.5 tsf	Ksigma	CRRv	MSF	CRRm	CSRfs w/fs	F.S. CRRm/CSRfs
6.50	0.25	0.23	1.00	0.23	0.90	0.21	0.70	5.00
7.50	0.29	0.25	1.00	0.25	0.90	0.23	0.70	5.00
8.50	0.33	0.32	1.00	0.32	0.90	0.29	0.70	5.00
9.50	0.37	0.36	1.00	0.36	0.90	0.33	0.69	5.00
10.50	0.42	2.00	1.00	2.00	0.90	1.81	0.69	5.00
11.50	0.46	2.00	1.00	2.00	0.90	1.81	0.69	5.00
12.50	0.50	2.00	1.00	2.00	0.90	1.81	0.69	5.00
13.50	0.54	2.00	1.00	2.00	0.90	1.81	0.69	5.00
14.50	0.59	0.44	1.00	0.44	0.90	0.40	0.69	5.00
15.50	0.63	2.00	1.00	2.00	0.90	1.81	0.68	5.00
16.50	0.67	2.00	1.00	2.00	0.90	1.81	0.68	5.00
17.50	0.71	2.00	1.00	2.00	0.90	1.81	0.68	5.00
18.50	0.75	0.38	1.00	0.38	0.90	0.35	0.68	5.00
19.50	0.79	0.34	1.00	0.34	0.90	0.31	0.68	5.00
20.50	0.83	0.32	1.00	0.32	0.90	0.29	0.68	5.00
21.50	0.87	0.30	1.00	0.30	0.90	0.27	0.67	5.00
22.50	0.92	0.31	1.00	0.31	0.90	0.28	0.67	5.00
23.50	0.96	0.32	1.00	0.32	0.90	0.29	0.67	5.00
24.50	1.00	0.34	1.00	0.34	0.90	0.30	0.67	5.00
25.50	1.04	0.35	1.00	0.35	0.90	0.32	0.67	5.00
26.50	1.08	0.37	0.99	0.37	0.90	0.33	0.67	5.00
27.50	1.12	0.39	0.99	0.38	0.90	0.35	0.66	5.00
28.50	1.17	2.00	0.98	1.96	0.90	1.77	0.66	5.00
29.50	1.21	2.00	0.97	1.95	0.90	1.76	0.66	5.00
30.50	1.25	2.00	0.97	1.94	0.90	1.75	0.66	5.00
31.50	1.30	2.00	0.96	1.92	0.90	1.74	0.65	5.00
32.50	1.34	2.00	0.96	1.91	0.90	1.73	0.65	5.00
33.50	1.38	2.00	0.95	1.90	0.90	1.72	0.64	5.00
34.50	1.43	2.00	0.94	1.89	0.90	1.70	0.63	5.00
35.50	1.47	2.00	0.94	1.87	0.90	1.69	0.63	5.00
36.50	1.51	2.00	0.93	1.86	0.90	1.68	0.62	5.00
37.50	1.56	2.00	0.93	1.85	0.90	1.67	0.62	5.00
38.50	1.60	2.00	0.92	1.84	0.90	1.66	0.61	5.00
39.50	1.65	2.00	0.91	1.83	0.90	1.65	0.61	5.00
40.50	1.69	2.00	0.91	1.82	0.90	2.00	0.60	5.00
41.50	1.73	2.00	0.90	1.81	0.90	2.00	0.59	5.00
42.50	1.78	2.00	0.90	1.80	0.90	2.00	0.59	5.00
43.50	1.82	2.00	0.89	1.78	0.90	2.00	0.58	5.00

44.50	1.86	2.00	0.89	1.77	0.90	2.00	0.58	5.00
45.50	1.91	2.00	0.88	1.76	0.90	2.00	0.57	5.00
46.50	1.95	2.00	0.88	1.75	0.90	2.00	0.56	5.00
47.50	2.00	2.00	0.87	1.74	0.90	2.00	0.56	5.00
48.50	2.04	2.00	0.87	1.73	0.90	2.00	0.55	5.00
49.50	2.08	2.00	0.86	1.73	0.90	2.00	0.55	5.00

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 tsf	(N1)60	Fines %	d(N1)60	(N1)60s
6.50	-	-	-	16.21	25.0	2.19	18.40
7.50	-	-	-	17.76	26.0	2.26	20.03
8.50	-	-	-	21.73	27.0	2.34	24.07
9.50	-	-	-	23.19	28.0	2.41	25.60
10.50	-	-	-	24.54	29.0	2.49	27.03
11.50	-	-	-	25.79	30.0	2.56	28.36
12.50	-	-	-	25.83	27.0	2.34	28.17
13.50	-	-	-	25.92	24.0	2.11	28.02
14.50	-	-	-	26.05	21.0	1.87	27.92
15.50	-	-	-	29.30	18.0	1.62	30.93
16.50	-	-	-	29.52	15.0	1.37	30.89
17.50	-	-	-	28.12	15.0	1.37	29.49
18.50	-	-	-	26.81	15.0	1.37	28.19
19.50	-	-	-	25.59	15.0	1.37	26.96
20.50	-	-	-	24.44	15.0	1.37	25.81
21.50	-	-	-	23.36	15.0	1.37	24.73
22.50	-	-	-	24.02	15.0	1.37	25.39
23.50	-	-	-	24.66	15.0	1.37	26.03
24.50	-	-	-	25.29	15.0	1.37	26.66
25.50	-	-	-	25.90	15.0	1.37	27.28
26.50	-	-	-	26.51	15.0	1.37	27.88
27.50	-	-	-	26.87	15.0	1.37	28.25
28.50	-	-	-	28.67	15.0	1.37	30.04
29.50	-	-	-	29.04	15.0	1.37	30.41
30.50	-	-	-	29.40	15.0	1.37	30.77
31.50	-	-	-	29.76	15.0	1.37	31.13
32.50	-	-	-	29.57	15.0	1.37	30.94
33.50	-	-	-	29.39	15.0	1.37	30.76
34.50	-	-	-	29.22	15.0	1.37	30.59
35.50	-	-	-	34.21	23.6	2.08	36.29
36.50	-	-	-	44.13	40.8	3.31	47.44
37.50	-	-	-	53.77	58.0	4.30	58.08
38.50	-	-	-	63.16	75.2	5.06	68.22
39.50	-	-	-	72.31	92.4	5.58	77.89
40.50	-	-	-	77.97	NoLiq	0.00	77.97
41.50	-	-	-	80.28	NoLiq	0.00	80.28
42.50	-	-	-	82.55	NoLiq	0.00	82.55
43.50	-	-	-	84.78	NoLiq	0.00	84.78
44.50	-	-	-	86.96	NoLiq	0.00	86.96
45.50	-	-	-	87.53	NoLiq	0.00	87.53
46.50	-	-	-	86.55	NoLiq	0.00	86.55
47.50	-	-	-	85.59	NoLiq	0.00	85.59
48.50	-	-	-	84.66	NoLiq	0.00	84.66
49.50	-	-	-	83.77	NoLiq	0.00	83.77

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine*

Depth ft	CSRfs w/fs	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsv in.	S in.

Settlement of Saturated Sands=0.000 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Settlement of Dry Sands:

Depth ft	sigma' dsz	sigC' dsv	S tsf	(N1)60s	CSRfs w/fs	Gmax tsf	g*Ge/Gm	g_eff	ec7.5 %	Cec	ec %
	50.05	3.24	2.11	83.29	0.54	2831.6	6.2E-4	0.2300	0.0727	1.12	
	0.0E0	0.000	0.000								0.0813
	49.50	3.21	2.08	83.77	0.55	2820.8	6.2E-4	0.2288	0.0723	1.12	
	0.0E0	0.000	0.000								0.0809
	48.50	3.14	2.04	84.66	0.55	2800.8	6.2E-4	0.2264	0.0716	1.12	
	0.0E0	0.000	0.000								0.0800
	47.50	3.07	2.00	85.59	0.56	2780.6	6.2E-4	0.2237	0.0707	1.12	
	0.0E0	0.000	0.000								0.0791
	46.50	3.00	1.95	86.55	0.56	2760.1	6.1E-4	0.2208	0.0698	1.12	
	0.0E0	0.000	0.000								0.0781
	45.50	2.94	1.91	87.53	0.57	2739.2	6.1E-4	0.2177	0.0688	1.12	
	0.0E0	0.000	0.000								0.0770
	44.50	2.87	1.86	86.96	0.58	2701.7	6.1E-4	0.2181	0.0690	1.12	
	0.0E0	0.000	0.000								0.0771
	43.50	2.80	1.82	84.78	0.58	2647.2	6.2E-4	0.2222	0.0703	1.12	
	0.0E0	0.000	0.000								0.0786
	42.50	2.73	1.78	82.55	0.59	2592.0	6.2E-4	0.2264	0.0716	1.12	
	0.0E0	0.000	0.000								0.0801
	41.50	2.67	1.73	80.28	0.59	2536.2	6.2E-4	0.2308	0.0730	1.12	
	0.0E0	0.000	0.000								0.0816
	40.50	2.60	1.69	77.97	0.60	2479.6	6.3E-4	0.2352	0.0744	1.12	
	0.0E0	0.000	0.000								0.0832
	39.50	2.53	1.65	77.89	0.61	2446.3	6.3E-4	0.2330	0.0737	1.12	
	9.9E-4	0.009	0.009								0.0824
	38.50	2.46	1.60	68.22	0.61	2309.3	6.5E-4	0.2623	0.0829	1.12	
	1.1E-3	0.021	0.030								0.0927
	37.50	2.40	1.56	58.08	0.62	2158.6	6.8E-4	0.3048	0.0964	1.12	
	1.3E-3	0.024	0.054								0.1078
	36.50	2.33	1.51	47.44	0.62	1989.3	7.3E-4	0.3723	0.1177	1.12	
	1.6E-3	0.029	0.082								0.1316
	35.50	2.26	1.47	36.29	0.63	1792.9	7.9E-4	1.0000	0.4038	1.12	
	5.4E-3	0.074	0.156								0.4515
	34.50	2.19	1.43	30.59	0.63	1668.4	8.3E-4	1.0000	0.5521	1.12	
	7.4E-3	0.139	0.295								0.6173
	33.50	2.13	1.38	30.76	0.64	1645.6	8.3E-4	1.0000	0.5475	1.12	
	7.3E-3	0.148	0.443								0.6121
	32.50	2.06	1.34	30.94	0.65	1622.4	8.2E-4	1.0000	0.5425	1.12	
	7.3E-3	0.146	0.589								0.6066
	31.50	1.99	1.30	31.13	0.65	1599.1	8.1E-4	1.0000	0.5372	1.12	
	7.2E-3	0.145	0.734								0.6007
	30.50	1.93	1.25	30.77	0.66	1566.1	8.1E-4	1.0000	0.5471	1.12	
	7.3E-3	0.146	0.879								0.6117

	29.50	1.86	1.21	30.41	0.66	1532.9	8.0E-4	1.0000	0.5573	1.12
0.6231	7.5E-3	0.148	1.028							
	28.50	1.79	1.17	30.04	0.66	1499.6	7.9E-4	1.0000	0.5679	1.12
0.6350	7.6E-3	0.151	1.179							
	27.50	1.73	1.12	28.25	0.66	1442.3	8.0E-4	1.0000	0.6220	1.12
0.6954	8.3E-3	0.159	1.337							
	26.50	1.66	1.08	27.88	0.67	1409.1	7.9E-4	1.0000	0.6337	1.12
0.7085	8.5E-3	0.169	1.506							
	25.50	1.60	1.04	27.28	0.67	1371.7	7.8E-4	1.0000	0.6534	1.12
0.7306	8.8E-3	0.173	1.679							
	24.50	1.54	1.00	26.66	0.67	1333.8	7.7E-4	1.0000	0.6743	1.12
0.7539	9.0E-3	0.178	1.857							
	23.50	1.47	0.96	26.03	0.67	1295.3	7.6E-4	1.0000	0.6966	1.12
0.7788	9.3E-3	0.184	2.041							
	22.50	1.41	0.92	25.39	0.67	1256.1	7.5E-4	1.0000	0.7205	1.12
0.8055	9.7E-3	0.190	2.231							
	21.50	1.34	0.87	24.73	0.67	1216.3	7.4E-4	1.0000	0.7462	1.12
0.8343	1.0E-2	0.197	2.428							
	20.50	1.28	0.83	25.81	0.68	1204.0	7.2E-4	1.0000	0.7046	1.12
0.7878	9.5E-3	0.194	2.622							
	19.50	1.22	0.79	26.96	0.68	1190.7	6.9E-4	0.9593	0.6369	1.12
0.7121	8.5E-3	0.182	2.805							
	18.50	1.15	0.75	28.19	0.68	1176.6	6.7E-4	1.0000	0.6239	1.12
0.6975	8.4E-3	0.149	2.954							
	17.50	1.09	0.71	29.49	0.68	1161.5	6.4E-4	1.0000	0.5840	1.12
0.6529	7.8E-3	0.162	3.116							
	16.50	1.03	0.67	30.89	0.68	1145.5	6.1E-4	1.0000	0.5437	1.12
0.6079	7.3E-3	0.151	3.267							
	15.50	0.96	0.63	30.93	0.68	1110.5	5.9E-4	1.0000	0.5428	1.12
0.6069	7.3E-3	0.146	3.413							
	14.50	0.90	0.59	27.92	0.69	1037.4	6.0E-4	1.0000	0.6324	1.12
0.7070	8.5E-3	0.153	3.565							
	13.50	0.84	0.54	28.02	0.69	1001.0	5.8E-4	1.0000	0.6290	1.12
0.7033	8.4E-3	0.169	3.735							
	12.50	0.77	0.50	28.17	0.69	962.9	5.5E-4	1.0000	0.6245	1.12
0.6982	8.4E-3	0.168	3.903							
	11.50	0.71	0.46	28.36	0.69	922.9	5.3E-4	1.0000	0.6185	1.12
0.6915	8.3E-3	0.167	4.070							
	10.50	0.64	0.42	27.03	0.69	864.9	5.1E-4	1.0000	0.6618	1.12
0.7399	8.9E-3	0.172	4.242							
	9.50	0.58	0.37	25.60	0.69	805.5	5.0E-4	0.9848	0.7016	1.12
0.7845	9.4E-3	0.184	4.426							
	8.50	0.51	0.33	24.07	0.70	744.5	4.8E-4	1.0000	0.7736	1.12
0.8649	1.0E-2	0.191	4.617							
	7.50	0.45	0.29	20.03	0.70	656.6	4.8E-4	1.0000	0.9830	1.12
1.0991	1.3E-2	0.244	4.861							
	6.50	0.39	0.25	18.40	0.70	593.8	4.6E-4	1.0000	1.0975	1.12
1.2271	1.5E-2	0.279	5.140							

Settlement of Dry Sands=5.140 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Dry Sands=5.140 in.
Differential Settlement=2.570 to 3.392 in.

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT)
fc	Friction from CPT testing
Gamma	Total unit weight of soil
Gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [tsf]
sigma'	Effective vertical stress [tsf]
sigC'	Effective confining pressure [tsf]
rd	Stress reduction coefficient
CSR	Cyclic stress ratio induced by earthquake
fs	User request factor of safety, apply to CSR
w/fs	With user request factor of safety inside
CSRfs	CSR with User request factor of safety
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksigma	Overburden stress correction factor for CRR7.5
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
MSF	Magnitude scaling factor for CRR (M=7.5)
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
F.S.	Factor of Safety against liquefaction F.S.=CRRm/CSRfs
Cebs	Energy Ratio, Borehole Dia., and Sample Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after seattlement fines corrections
ec	Volumetric strain for saturated sands
ds	Settlement in each Segment dz
dz	Segment for calculation, dz=0.050 ft
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

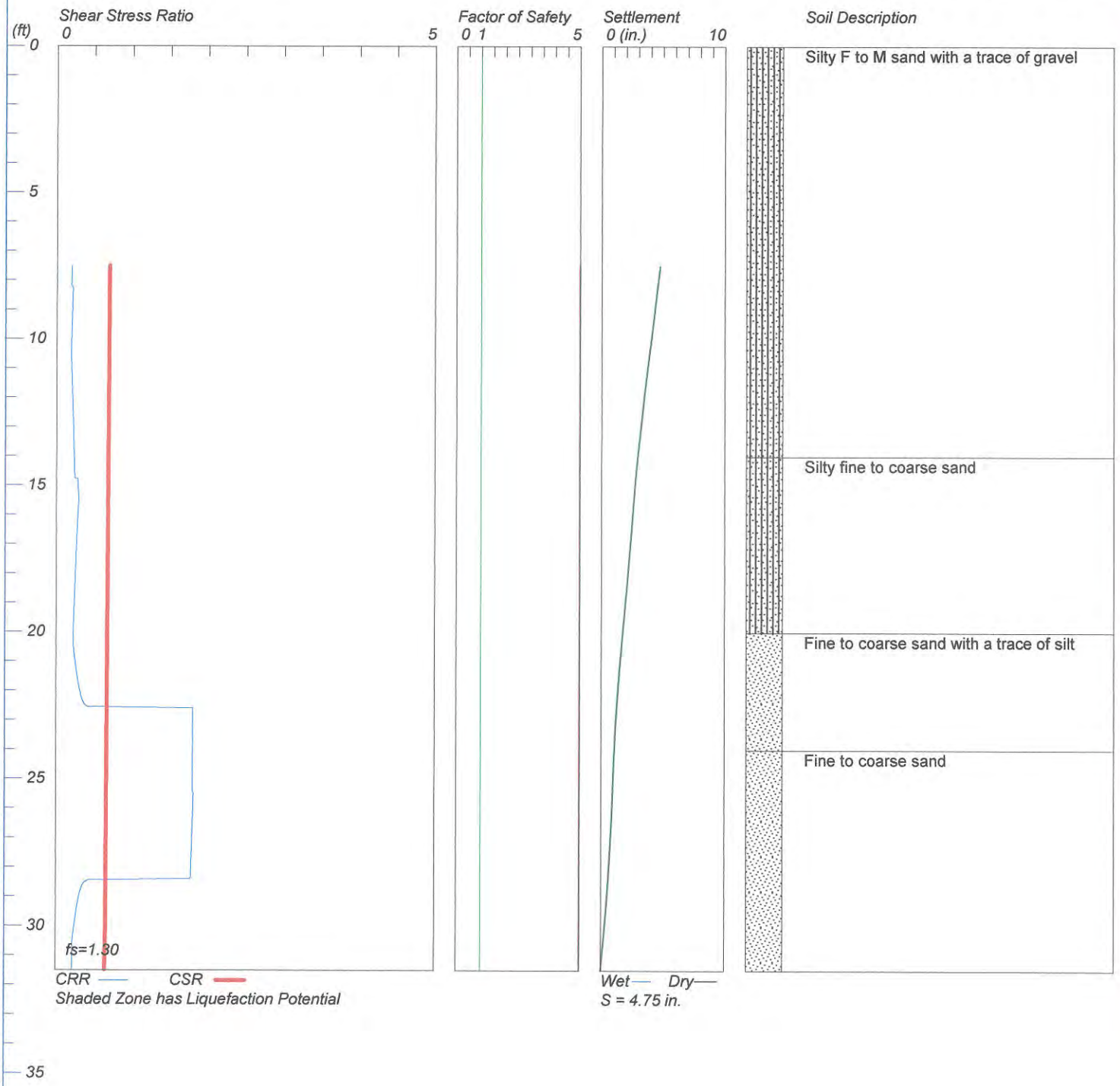
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

MORENO ELEMENTARY SCHOOL REPLACEMENT

Hole No.=B-5 Water Depth=100 ft

Magnitude=7.8
Acceleration=0.84g



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LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 5.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Surface Elev.=
Hole No.=B-5
Depth of Hole= 31.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration= 0.84 g
Earthquake Magnitude= 7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Input Data:

Depth ft	SPT	Gamma pcf	Fines %
7.5	10.0	118.0	20.0
10.5	10.0	124.0	20.0
15.5	17.0	126.0	15.0
20.5	18.0	117.0	3.0
25.5	34.0	124.0	1.0
30.5	21.0	124.0	1.0

Output Results:
Settlement of saturated sands=0.00 in.
Settlement of dry sands=4.75 in.
Total settlement of saturated and dry sands=4.75 in.
Differential Settlement=2.373 to 3.132 in.

Depth ft	CRRm	CSRfs w/fs	F.S.	S_sat. in.	S_dry in.	S_all in.
7.50	0.20	0.70	5.00	0.00	4.75	4.75
8.50	0.21	0.70	5.00	0.00	4.46	4.46
9.50	0.20	0.69	5.00	0.00	4.18	4.18

10.50	0.19	0.69	5.00	0.00	3.89	3.89
11.50	0.21	0.69	5.00	0.00	3.59	3.59
12.50	0.22	0.69	5.00	0.00	3.33	3.33
13.50	0.23	0.69	5.00	0.00	3.08	3.08
14.50	0.24	0.69	5.00	0.00	2.85	2.85
15.50	0.30	0.68	5.00	0.00	2.65	2.65
16.50	0.28	0.68	5.00	0.00	2.46	2.46
17.50	0.26	0.68	5.00	0.00	2.27	2.27
18.50	0.25	0.68	5.00	0.00	2.07	2.07
19.50	0.23	0.68	5.00	0.00	1.86	1.86
20.50	0.23	0.68	5.00	0.00	1.65	1.65
21.50	0.28	0.67	5.00	0.00	1.45	1.45
22.50	0.39	0.67	5.00	0.00	1.29	1.29
23.50	1.81	0.67	5.00	0.00	1.15	1.15
24.50	1.81	0.67	5.00	0.00	1.04	1.04
25.50	1.82	0.67	5.00	0.00	0.95	0.95
26.50	1.81	0.67	5.00	0.00	0.85	0.85
27.50	1.80	0.66	5.00	0.00	0.73	0.73
28.50	0.39	0.66	5.00	0.00	0.58	0.58
29.50	0.27	0.66	5.00	0.00	0.42	0.42
30.50	0.22	0.66	5.00	0.00	0.22	0.22
31.50	0.22	0.65	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

****

LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 5.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Input Data:

Surface Elev.=
Hole No.=B-5
Depth of Hole=31.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration=0.84 g
Earthquake Magnitude=7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Depth ft	SPT	Gamma pcf	Fines %
7.5	10.0	118.0	20.0
10.5	10.0	124.0	20.0
15.5	17.0	126.0	15.0
20.5	18.0	117.0	3.0
25.5	34.0	124.0	1.0
30.5	21.0	124.0	1.0

Output Results: (Interval = 1.00 ft)

CSR Calculation:

Depth ft	gamma pcf	sigma tsf	gamma' pcf	sigma' tsf	rd	CSR	fs (user)	CSRfs w/fs
7.50	118.0	0.443	118.0	0.443	0.98	0.54	1.3	0.70
8.50	120.0	0.502	120.0	0.502	0.98	0.54	1.3	0.70
9.50	122.0	0.562	122.0	0.562	0.98	0.53	1.3	0.69
10.50	124.0	0.624	124.0	0.624	0.98	0.53	1.3	0.69

11.50	124.4	0.686	124.4	0.686	0.97	0.53	1.3	0.69
12.50	124.8	0.748	124.8	0.748	0.97	0.53	1.3	0.69
13.50	125.2	0.811	125.2	0.811	0.97	0.53	1.3	0.69
14.50	125.6	0.874	125.6	0.874	0.97	0.53	1.3	0.69
15.50	126.0	0.936	126.0	0.936	0.96	0.53	1.3	0.68
16.50	124.2	0.999	124.2	0.999	0.96	0.52	1.3	0.68
17.50	122.4	1.061	122.4	1.061	0.96	0.52	1.3	0.68
18.50	120.6	1.121	120.6	1.121	0.96	0.52	1.3	0.68
19.50	118.8	1.181	118.8	1.181	0.95	0.52	1.3	0.68
20.50	117.0	1.240	117.0	1.240	0.95	0.52	1.3	0.68
21.50	118.4	1.299	118.4	1.299	0.95	0.52	1.3	0.67
22.50	119.8	1.359	119.8	1.359	0.95	0.52	1.3	0.67
23.50	121.2	1.419	121.2	1.419	0.95	0.52	1.3	0.67
24.50	122.6	1.480	122.6	1.480	0.94	0.51	1.3	0.67
25.50	124.0	1.541	124.0	1.541	0.94	0.51	1.3	0.67
26.50	124.0	1.603	124.0	1.603	0.94	0.51	1.3	0.67
27.50	124.0	1.665	124.0	1.665	0.94	0.51	1.3	0.66
28.50	124.0	1.727	124.0	1.727	0.93	0.51	1.3	0.66
29.50	124.0	1.789	124.0	1.789	0.93	0.51	1.3	0.66
30.50	124.0	1.851	124.0	1.851	0.93	0.51	1.3	0.66
31.50	124.0	1.913	124.0	1.913	0.92	0.50	1.3	0.65

CSR is based on water table at 100.0 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma'	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
7.50	10.00	1.50	0.75	0.443	1.50	16.91	20.0	3.60	20.51	0.22
8.50	10.00	1.50	0.85	0.502	1.41	18.00	20.0	3.60	21.60	0.24
9.50	10.00	1.50	0.85	0.562	1.33	17.00	20.0	3.60	20.60	0.22
10.50	10.00	1.50	0.85	0.624	1.27	16.14	20.0	3.60	19.74	0.21
11.50	11.40	1.50	0.85	0.686	1.21	17.55	19.0	3.36	20.91	0.23
12.50	12.80	1.50	0.85	0.748	1.16	18.87	18.0	3.12	21.99	0.24
13.50	14.20	1.50	0.85	0.811	1.11	20.11	17.0	2.88	22.99	0.25
14.50	15.60	1.50	0.85	0.874	1.07	21.28	16.0	2.64	23.92	0.27
15.50	17.00	1.50	0.95	0.936	1.03	25.03	15.0	2.40	27.43	0.33
16.50	17.20	1.50	0.95	0.999	1.00	24.52	12.6	1.82	26.35	0.31
17.50	17.40	1.50	0.95	1.061	0.97	24.08	10.2	1.25	25.32	0.29
18.50	17.60	1.50	0.95	1.121	0.94	23.68	7.8	0.67	24.36	0.27
19.50	17.80	1.50	0.95	1.181	0.92	23.34	5.4	0.10	23.43	0.26
20.50	18.00	1.50	0.95	1.240	0.90	23.03	3.0	0.00	23.03	0.25
21.50	21.20	1.50	0.95	1.299	0.88	26.50	2.6	0.00	26.50	0.31
22.50	24.40	1.50	0.95	1.359	0.86	29.83	2.2	0.00	29.83	0.43

	23.50	27.60	1.50	0.95	1.419	0.84	33.02	1.8	0.00
33.02	2.00								
	24.50	30.80	1.50	0.95	1.480	0.82	36.08	1.4	0.00
36.08	2.00								
	25.50	34.00	1.50	0.95	1.541	0.81	39.02	1.0	0.00
39.02	2.00								
	26.50	31.40	1.50	0.95	1.603	0.79	35.34	1.0	0.00
35.34	2.00								
	27.50	28.80	1.50	0.95	1.665	0.77	31.80	1.0	0.00
31.80	2.00								
	28.50	26.20	1.50	1.00	1.727	0.76	29.90	1.0	0.00
29.90	0.44								
	29.50	23.60	1.50	1.00	1.789	0.75	26.46	1.0	0.00
26.46	0.31								
	30.50	21.00	1.50	1.00	1.851	0.73	23.15	1.0	0.00
23.15	0.26								
	31.50	21.00	1.50	1.00	1.913	0.72	22.77	1.0	0.00
22.77	0.25								

CRR is based on water table at 100.0 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.8:

Depth ft	sigC' tsf	CRR7.5 tsf	Ksigma	CRRv	MSF	CRRm	CSRfs w/fs	F.S. CRRm/CSRfs
7.50	0.29	0.22	1.00	0.22	0.90	0.20	0.70	5.00
8.50	0.33	0.24	1.00	0.24	0.90	0.21	0.70	5.00
9.50	0.37	0.22	1.00	0.22	0.90	0.20	0.69	5.00
10.50	0.41	0.21	1.00	0.21	0.90	0.19	0.69	5.00
11.50	0.45	0.23	1.00	0.23	0.90	0.21	0.69	5.00
12.50	0.49	0.24	1.00	0.24	0.90	0.22	0.69	5.00
13.50	0.53	0.25	1.00	0.25	0.90	0.23	0.69	5.00
14.50	0.57	0.27	1.00	0.27	0.90	0.24	0.69	5.00
15.50	0.61	0.33	1.00	0.33	0.90	0.30	0.68	5.00
16.50	0.65	0.31	1.00	0.31	0.90	0.28	0.68	5.00
17.50	0.69	0.29	1.00	0.29	0.90	0.26	0.68	5.00
18.50	0.73	0.27	1.00	0.27	0.90	0.25	0.68	5.00
19.50	0.77	0.26	1.00	0.26	0.90	0.23	0.68	5.00
20.50	0.81	0.25	1.00	0.25	0.90	0.23	0.68	5.00
21.50	0.84	0.31	1.00	0.31	0.90	0.28	0.67	5.00
22.50	0.88	0.43	1.00	0.43	0.90	0.39	0.67	5.00
23.50	0.92	2.00	1.00	2.00	0.90	1.81	0.67	5.00
24.50	0.96	2.00	1.00	2.00	0.90	1.81	0.67	5.00
25.50	1.00	2.00	1.01	2.01	0.90	1.82	0.67	5.00
26.50	1.04	2.00	1.00	2.00	0.90	1.81	0.67	5.00
27.50	1.08	2.00	0.99	1.99	0.90	1.80	0.66	5.00
28.50	1.12	0.44	0.99	0.43	0.90	0.39	0.66	5.00
29.50	1.16	0.31	0.98	0.30	0.90	0.27	0.66	5.00
30.50	1.20	0.26	0.97	0.25	0.90	0.22	0.66	5.00
31.50	1.24	0.25	0.97	0.24	0.90	0.22	0.65	5.00

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 tsf	(N1)60	Fines %	d(N1)60	(N1)60s
7.50	-	-	-	16.91	20.0	1.79	18.70

8.50	-	-	-	18.00	20.0	1.79	19.78
9.50	-	-	-	17.00	20.0	1.79	18.79
10.50	-	-	-	16.14	20.0	1.79	17.93
11.50	-	-	-	17.55	19.0	1.71	19.26
12.50	-	-	-	18.87	18.0	1.62	20.49
13.50	-	-	-	20.11	17.0	1.54	21.65
14.50	-	-	-	21.28	16.0	1.46	22.74
15.50	-	-	-	25.03	15.0	1.37	26.41
16.50	-	-	-	24.52	12.6	1.16	25.69
17.50	-	-	-	24.08	10.2	0.95	25.03
18.50	-	-	-	23.68	7.8	0.74	24.42
19.50	-	-	-	23.34	5.4	0.51	23.85
20.50	-	-	-	23.03	3.0	0.29	23.32
21.50	-	-	-	26.50	2.6	0.25	26.76
22.50	-	-	-	29.83	2.2	0.21	30.04
23.50	-	-	-	33.02	1.8	0.17	33.19
24.50	-	-	-	36.08	1.4	0.14	36.22
25.50	-	-	-	39.02	1.0	0.10	39.12
26.50	-	-	-	35.34	1.0	0.10	35.43
27.50	-	-	-	31.80	1.0	0.10	31.90
28.50	-	-	-	29.90	1.0	0.10	30.00
29.50	-	-	-	26.46	1.0	0.10	26.56
30.50	-	-	-	23.15	1.0	0.10	23.25
31.50	-	-	-	22.77	1.0	0.10	22.87

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine*

Depth ft	CSRfs w/fs	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsv in.	S in.

Settlement of Saturated Sands=0.000 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Settlement of Dry Sands:

Depth ft	sigma' dsz	sigC' dsv	(N1)60s	CSRfs	Gmax	g*Ge/Gm	g_eff	ec7.5	Cec	ec
	S									
	tsf	tsf		w/fs	tsf			%		%
	in.	in.								
31.45	1.91	1.24	22.89	0.65	1413.4	8.8E-4	1.0000	0.8262	1.12	0.9238
	1.1E-2	0.011	0.011							
30.50	1.85	1.20	23.25	0.66	1398.7	8.7E-4	1.0000	0.8095	1.12	0.9051
	1.1E-2	0.208	0.219							
29.50	1.79	1.16	26.56	0.66	1437.5	8.2E-4	1.0000	0.6778	1.12	0.7578
	9.1E-3	0.198	0.417							
28.50	1.73	1.12	30.00	0.66	1470.8	7.8E-4	1.0000	0.5691	1.12	0.6363
	7.6E-3	0.166	0.584							
27.50	1.67	1.08	31.90	0.66	1474.0	7.5E-4	1.0000	0.5161	1.12	0.5771
	6.9E-3	0.144	0.727							
26.50	1.60	1.04	35.43	0.67	1497.8	7.1E-4	1.0000	0.4249	1.12	0.4751
	5.7E-3	0.126	0.853							
25.50	1.54	1.00	39.12	0.67	1517.8	6.8E-4	0.8520	0.2861	1.12	0.3199
	3.8E-3	0.097	0.950							
24.50	1.48	0.96	36.22	0.67	1449.4	6.8E-4	0.8917	0.3616	1.12	

0.4043	4.9E-3	0.087	1.037							
	23.50	1.42	0.92	33.19	0.67	1378.6	6.9E-4	0.9491	0.4573	1.12
0.5113	6.1E-3	0.110	1.147							
	22.50	1.36	0.88	30.04	0.67	1305.0	7.0E-4	1.0000	0.5679	1.12
0.6349	7.6E-3	0.139	1.286							
	21.50	1.30	0.84	26.76	0.67	1227.8	7.1E-4	1.0000	0.6710	1.12
0.7503	9.0E-3	0.166	1.452							
	20.50	1.24	0.81	23.32	0.68	1146.0	7.3E-4	1.0000	0.8062	1.12
0.9014	1.1E-2	0.198	1.651							
	19.50	1.18	0.77	23.85	0.68	1126.9	7.1E-4	1.0000	0.7827	1.12
0.8751	1.1E-2	0.213	1.864							
	18.50	1.12	0.73	24.42	0.68	1106.5	6.9E-4	1.0000	0.7588	1.12
0.8484	1.0E-2	0.207	2.070							
	17.50	1.06	0.69	25.03	0.68	1085.0	6.7E-4	1.0000	0.7344	1.12
0.8211	9.9E-3	0.200	2.270							
	16.50	1.00	0.65	25.69	0.68	1062.1	6.4E-4	1.0000	0.7093	1.12
0.7930	9.5E-3	0.194	2.464							
	15.50	0.94	0.61	26.41	0.68	1037.8	6.2E-4	1.0000	0.6832	1.12
0.7639	9.2E-3	0.187	2.651							
	14.50	0.87	0.57	22.74	0.69	953.7	6.3E-4	1.0000	0.8333	1.12
0.9317	1.1E-2	0.198	2.849							
	13.50	0.81	0.53	21.65	0.69	903.9	6.2E-4	1.0000	0.8885	1.12
0.9934	1.2E-2	0.231	3.080							
	12.50	0.75	0.49	20.49	0.69	852.6	6.0E-4	1.0000	0.9542	1.12
1.0669	1.3E-2	0.247	3.327							
	11.50	0.69	0.45	19.26	0.69	799.6	5.9E-4	1.0000	1.0345	1.12
1.1566	1.4E-2	0.267	3.594							
	10.50	0.62	0.41	17.93	0.69	744.7	5.8E-4	1.0000	1.1349	1.12
1.2689	1.5E-2	0.291	3.885							
	9.50	0.56	0.37	18.79	0.69	718.2	5.4E-4	1.0000	1.0679	1.12
1.1940	1.4E-2	0.295	4.180							
	8.50	0.50	0.33	19.78	0.70	690.2	5.1E-4	1.0000	0.9987	1.12
1.1166	1.3E-2	0.277	4.457							
	7.50	0.44	0.29	18.70	0.70	636.0	4.9E-4	1.0000	1.0745	1.12
1.2014	1.4E-2	0.288	4.746							

Settlement of Dry Sands=4.746 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Dry Sands=4.746 in.
Differential Settlement=2.373 to 3.132 in.

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT)
fc	Friction from CPT testing
Gamma	Total unit weight of soil
Gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [tsf]
sigma'	Effective vertical stress [tsf]
sigC'	Effective confining pressure [tsf]

rd	Stress reduction coefficient
CSR	Cyclic stress ratio induced by earthquake
fs	User request factor of safety, apply to CSR
w/fs	With user request factor of safety inside
CSRfs	CSR with User request factor of safety
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksigma	Overburden stress correction factor for CRR7.5
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
MSF	Magnitude scaling factor for CRR (M=7.5)
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
F.S.	Factor of Safety against liquefaction F.S.=CRRm/CSRfs
Cebs	Energy Ratio, Borehole Dia., and Sample Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after seattlement fines corrections
ec	Volumetric strain for saturated sands
ds	Settlement in each Segment dz
dz	Segment for calculation, dz=0.050 ft
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

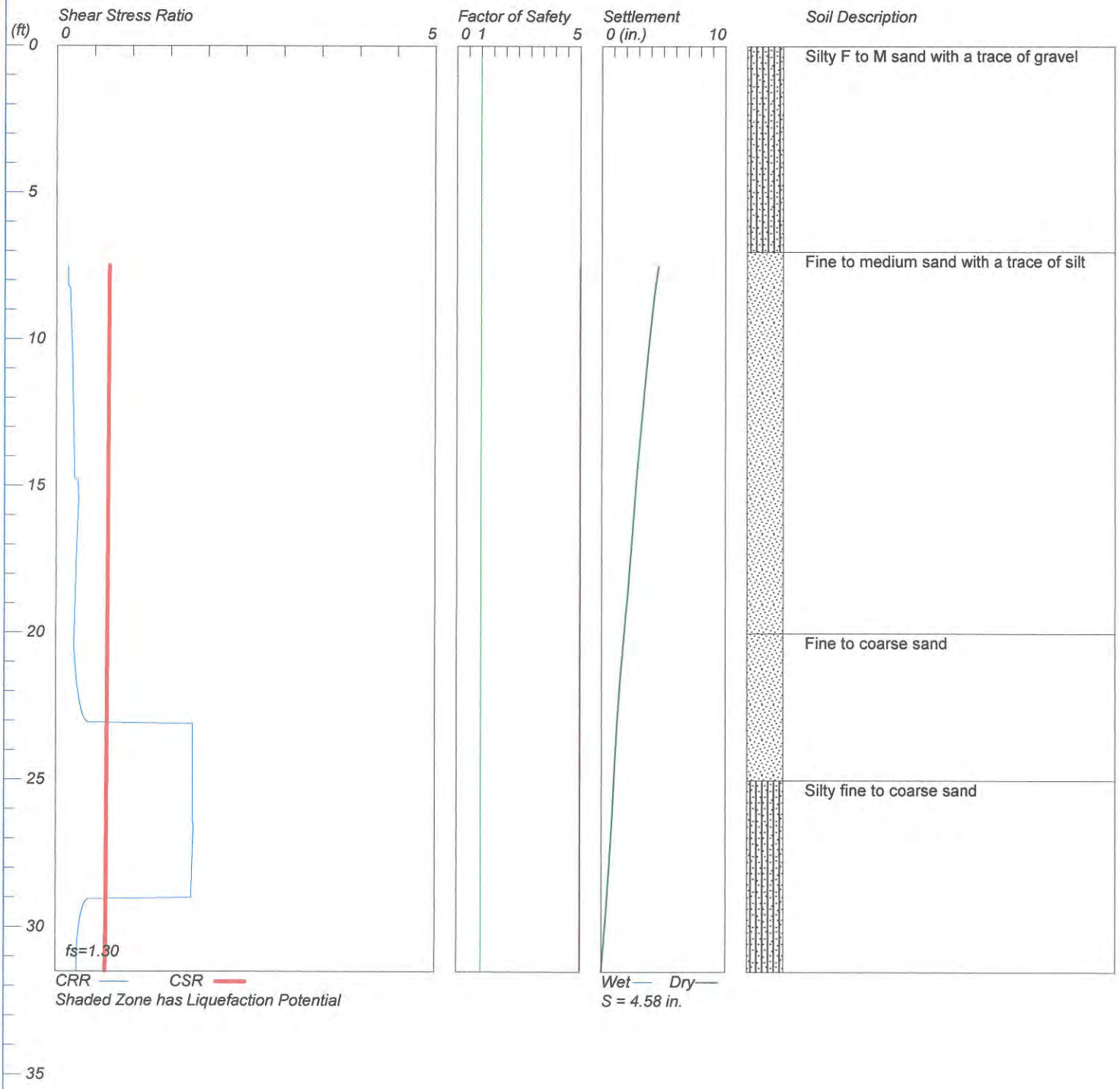
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

MORENO ELEMENTARY SCHOOL REPLACEMENT

Hole No.=B-8 Water Depth=100 ft

Magnitude=7.8
Acceleration=0.84g



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LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 8.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Surface Elev.=
Hole No.=B-8
Depth of Hole= 31.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration= 0.84 g
Earthquake Magnitude= 7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Input Data:

Depth ft	SPT	Gamma pcf	Fines %
7.5	9.0	111.0	3.0
10.5	13.0	113.0	3.0
15.5	18.0	116.0	3.0
20.5	18.0	119.0	1.0
25.5	28.0	129.0	20.0
30.5	21.0	131.0	20.0

Output Results:
Settlement of saturated sands=0.00 in.
Settlement of dry sands=4.58 in.
Total settlement of saturated and dry sands=4.58 in.
Differential Settlement=2.292 to 3.025 in.

Depth ft	CRRm	CSRfs w/fs	F.S.	S_sat. in.	S_dry in.	S_all in.
7.50	0.15	0.70	5.00	0.00	4.58	4.58
8.50	0.19	0.70	5.00	0.00	4.26	4.26
9.50	0.20	0.69	5.00	0.00	4.00	4.00

10.50	0.21	0.69	5.00	0.00	3.75	3.75
11.50	0.22	0.69	5.00	0.00	3.52	3.52
12.50	0.23	0.69	5.00	0.00	3.30	3.30
13.50	0.23	0.69	5.00	0.00	3.09	3.09
14.50	0.24	0.69	5.00	0.00	2.88	2.88
15.50	0.30	0.68	5.00	0.00	2.70	2.70
16.50	0.28	0.68	5.00	0.00	2.52	2.52
17.50	0.27	0.68	5.00	0.00	2.34	2.34
18.50	0.26	0.68	5.00	0.00	2.15	2.15
19.50	0.25	0.68	5.00	0.00	1.95	1.95
20.50	0.24	0.68	5.00	0.00	1.74	1.74
21.50	0.27	0.67	5.00	0.00	1.55	1.55
22.50	0.32	0.67	5.00	0.00	1.37	1.37
23.50	1.81	0.67	5.00	0.00	1.22	1.22
24.50	1.81	0.67	5.00	0.00	1.09	1.09
25.50	1.81	0.67	5.00	0.00	0.97	0.97
26.50	1.82	0.67	5.00	0.00	0.84	0.84
27.50	1.81	0.66	5.00	0.00	0.70	0.70
28.50	1.80	0.66	5.00	0.00	0.55	0.55
29.50	0.34	0.66	5.00	0.00	0.38	0.38
30.50	0.28	0.66	5.00	0.00	0.20	0.20
31.50	0.28	0.65	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

****

LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 8.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Input Data:

Surface Elev.=
Hole No.=B-8
Depth of Hole=31.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration=0.84 g
Earthquake Magnitude=7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Depth ft	SPT	Gamma pcf	Fines %
7.5	9.0	111.0	3.0
10.5	13.0	113.0	3.0
15.5	18.0	116.0	3.0
20.5	18.0	119.0	1.0
25.5	28.0	129.0	20.0
30.5	21.0	131.0	20.0

Output Results: (Interval = 1.00 ft)

CSR Calculation:

Depth ft	gamma pcf	sigma tsf	gamma' pcf	sigma' tsf	rd	CSR	fs (user)	CSRfs w/fs
7.50	111.0	0.416	111.0	0.416	0.98	0.54	1.3	0.70
8.50	111.7	0.472	111.7	0.472	0.98	0.54	1.3	0.70
9.50	112.3	0.528	112.3	0.528	0.98	0.53	1.3	0.69
10.50	113.0	0.584	113.0	0.584	0.98	0.53	1.3	0.69

11.50	113.6	0.641	113.6	0.641	0.97	0.53	1.3	0.69
12.50	114.2	0.698	114.2	0.698	0.97	0.53	1.3	0.69
13.50	114.8	0.755	114.8	0.755	0.97	0.53	1.3	0.69
14.50	115.4	0.813	115.4	0.813	0.97	0.53	1.3	0.69
15.50	116.0	0.870	116.0	0.870	0.96	0.53	1.3	0.68
16.50	116.6	0.929	116.6	0.929	0.96	0.52	1.3	0.68
17.50	117.2	0.987	117.2	0.987	0.96	0.52	1.3	0.68
18.50	117.8	1.046	117.8	1.046	0.96	0.52	1.3	0.68
19.50	118.4	1.105	118.4	1.105	0.95	0.52	1.3	0.68
20.50	119.0	1.164	119.0	1.164	0.95	0.52	1.3	0.68
21.50	121.0	1.224	121.0	1.224	0.95	0.52	1.3	0.67
22.50	123.0	1.285	123.0	1.285	0.95	0.52	1.3	0.67
23.50	125.0	1.347	125.0	1.347	0.95	0.52	1.3	0.67
24.50	127.0	1.410	127.0	1.410	0.94	0.51	1.3	0.67
25.50	129.0	1.474	129.0	1.474	0.94	0.51	1.3	0.67
26.50	129.4	1.539	129.4	1.539	0.94	0.51	1.3	0.67
27.50	129.8	1.603	129.8	1.603	0.94	0.51	1.3	0.66
28.50	130.2	1.668	130.2	1.668	0.93	0.51	1.3	0.66
29.50	130.6	1.734	130.6	1.734	0.93	0.51	1.3	0.66
30.50	131.0	1.799	131.0	1.799	0.93	0.51	1.3	0.66
31.50	131.0	1.865	131.0	1.865	0.92	0.50	1.3	0.65

CSR is based on water table at 100.0 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma'	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
7.50	9.00	1.50	0.75	0.416	1.55	15.69	3.0	0.00	15.69	0.17
8.50	10.33	1.50	0.85	0.472	1.46	19.18	3.0	0.00	19.18	0.21
9.50	11.67	1.50	0.85	0.528	1.38	20.47	3.0	0.00	20.47	0.22
10.50	13.00	1.50	0.85	0.584	1.31	21.69	3.0	0.00	21.69	0.24
11.50	14.00	1.50	0.85	0.641	1.25	22.30	3.0	0.00	22.30	0.24
12.50	15.00	1.50	0.85	0.698	1.20	22.89	3.0	0.00	22.89	0.25
13.50	16.00	1.50	0.85	0.755	1.15	23.48	3.0	0.00	23.48	0.26
14.50	17.00	1.50	0.85	0.813	1.11	24.04	3.0	0.00	24.04	0.27
15.50	18.00	1.50	0.95	0.870	1.07	27.49	3.0	0.00	27.49	0.33
16.50	18.00	1.50	0.95	0.929	1.04	26.62	2.6	0.00	26.62	0.31
17.50	18.00	1.50	0.95	0.987	1.01	25.82	2.2	0.00	25.82	0.30
18.50	18.00	1.50	0.95	1.046	0.98	25.08	1.8	0.00	25.08	0.28
19.50	18.00	1.50	0.95	1.105	0.95	24.40	1.4	0.00	24.40	0.27
20.50	18.00	1.50	0.95	1.164	0.93	23.77	1.0	0.00	23.77	0.26
21.50	20.00	1.50	0.95	1.224	0.90	25.76	4.8	0.00	25.76	0.30
22.50	22.00	1.50	0.95	1.285	0.88	27.65	8.6	0.86	28.52	0.36

23.50	24.00	1.50	0.95	1.347	0.86	29.47	12.4	1.78
31.24	2.00							
24.50	26.00	1.50	0.95	1.410	0.84	31.20	16.2	2.69
33.89	2.00							
25.50	28.00	1.50	0.95	1.474	0.82	32.86	20.0	3.60
36.46	2.00							
26.50	26.60	1.50	0.95	1.539	0.81	30.56	20.0	3.60
34.16	2.00							
27.50	25.20	1.50	0.95	1.603	0.79	28.36	20.0	3.60
31.96	2.00							
28.50	23.80	1.50	1.00	1.668	0.77	27.64	20.0	3.60
31.24	2.00							
29.50	22.40	1.50	1.00	1.734	0.76	25.52	20.0	3.60
29.12	0.38							
30.50	21.00	1.50	1.00	1.799	0.75	23.49	20.0	3.60
27.09	0.32							
31.50	21.00	1.50	1.00	1.865	0.73	23.07	20.0	3.60
26.67	0.31							

CRR is based on water table at 100.0 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.8:

Depth ft	sigC' tsf	CRR7.5 tsf	Ksigma	CRRv	MSF	CRRm	CSRfs w/fs	F.S. CRRm/CSRfs
7.50	0.27	0.17	1.00	0.17	0.90	0.15	0.70	5.00
8.50	0.31	0.21	1.00	0.21	0.90	0.19	0.70	5.00
9.50	0.34	0.22	1.00	0.22	0.90	0.20	0.69	5.00
10.50	0.38	0.24	1.00	0.24	0.90	0.21	0.69	5.00
11.50	0.42	0.24	1.00	0.24	0.90	0.22	0.69	5.00
12.50	0.45	0.25	1.00	0.25	0.90	0.23	0.69	5.00
13.50	0.49	0.26	1.00	0.26	0.90	0.23	0.69	5.00
14.50	0.53	0.27	1.00	0.27	0.90	0.24	0.69	5.00
15.50	0.57	0.33	1.00	0.33	0.90	0.30	0.68	5.00
16.50	0.60	0.31	1.00	0.31	0.90	0.28	0.68	5.00
17.50	0.64	0.30	1.00	0.30	0.90	0.27	0.68	5.00
18.50	0.68	0.28	1.00	0.28	0.90	0.26	0.68	5.00
19.50	0.72	0.27	1.00	0.27	0.90	0.25	0.68	5.00
20.50	0.76	0.26	1.00	0.26	0.90	0.24	0.68	5.00
21.50	0.80	0.30	1.00	0.30	0.90	0.27	0.67	5.00
22.50	0.84	0.36	1.00	0.36	0.90	0.32	0.67	5.00
23.50	0.88	2.00	1.00	2.00	0.90	1.81	0.67	5.00
24.50	0.92	2.00	1.00	2.00	0.90	1.81	0.67	5.00
25.50	0.96	2.00	1.00	2.00	0.90	1.81	0.67	5.00
26.50	1.00	2.00	1.01	2.01	0.90	1.82	0.67	5.00
27.50	1.04	2.00	1.00	2.00	0.90	1.81	0.66	5.00
28.50	1.08	2.00	0.99	1.99	0.90	1.80	0.66	5.00
29.50	1.13	0.38	0.99	0.37	0.90	0.34	0.66	5.00
30.50	1.17	0.32	0.98	0.31	0.90	0.28	0.66	5.00
31.50	1.21	0.31	0.97	0.30	0.90	0.28	0.65	5.00

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 tsf	(N1)60	Fines %	d(N1)60	(N1)60s
7.50	-	-	-	15.69	3.0	0.29	15.98

8.50	-	-	-	19.18	3.0	0.29	19.47
9.50	-	-	-	20.47	3.0	0.29	20.76
10.50	-	-	-	21.69	3.0	0.29	21.97
11.50	-	-	-	22.30	3.0	0.29	22.59
12.50	-	-	-	22.89	3.0	0.29	23.18
13.50	-	-	-	23.48	3.0	0.29	23.77
14.50	-	-	-	24.04	3.0	0.29	24.33
15.50	-	-	-	27.49	3.0	0.29	27.78
16.50	-	-	-	26.62	2.6	0.25	26.87
17.50	-	-	-	25.82	2.2	0.21	26.03
18.50	-	-	-	25.08	1.8	0.17	25.26
19.50	-	-	-	24.40	1.4	0.14	24.54
20.50	-	-	-	23.77	1.0	0.10	23.87
21.50	-	-	-	25.76	4.8	0.46	26.22
22.50	-	-	-	27.65	8.6	0.81	28.46
23.50	-	-	-	29.47	12.4	1.15	30.61
24.50	-	-	-	31.20	16.2	1.47	32.67
25.50	-	-	-	32.86	20.0	1.79	34.65
26.50	-	-	-	30.56	20.0	1.79	32.35
27.50	-	-	-	28.36	20.0	1.79	30.15
28.50	-	-	-	27.64	20.0	1.79	29.43
29.50	-	-	-	25.52	20.0	1.79	27.31
30.50	-	-	-	23.49	20.0	1.79	25.27
31.50	-	-	-	23.07	20.0	1.79	24.86

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine*

Depth	CSRfs	F.S.	Fines	(N1)60s	Dr	ec	dsz	dsv	S
ft	w/fs		%		%	%	in.	in.	in.

Settlement of Saturated Sands=0.000 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Settlement of Dry Sands:

Depth	sigma'	sigC'	(N1)60s	CSRfs	Gmax	g*Ge/Gm	g_eff	ec7.5	Cec	ec
ft	tsf	S tsf		w/fs	tsf			%		%
	dsz in.	dsv in.	in.							
31.45	1.86	1.21	24.88	0.65	1434.4	8.5E-4	1.0000	0.7403	1.12	0.8277
	9.9E-3	0.010	0.010							
30.50	1.80	1.17	25.27	0.66	1417.7	8.3E-4	1.0000	0.7249	1.12	0.8105
	9.7E-3	0.187	0.197							
29.50	1.73	1.13	27.31	0.66	1428.0	8.0E-4	1.0000	0.6523	1.12	0.7293
	8.8E-3	0.184	0.381							
28.50	1.67	1.08	29.43	0.66	1436.2	7.7E-4	1.0000	0.5859	1.12	0.6551
	7.9E-3	0.166	0.546							
27.50	1.60	1.04	30.15	0.66	1419.3	7.5E-4	1.0000	0.5648	1.12	0.6315
	7.6E-3	0.153	0.699							
26.50	1.54	1.00	32.35	0.67	1423.4	7.2E-4	1.0000	0.5041	1.12	0.5636
	6.8E-3	0.143	0.842							
25.50	1.47	0.96	34.65	0.67	1425.5	6.9E-4	0.9479	0.4213	1.12	0.4711
	5.7E-3	0.126	0.968							
24.50	1.41	0.92	32.67	0.67	1367.2	6.9E-4	0.9471	0.4692	1.12	

0.5246	6.3E-3	0.120	1.088							
	23.50	1.35	0.88	30.61	0.67	1307.6	6.9E-4	0.9547	0.5266	1.12
0.5888	7.1E-3	0.134	1.221							
	22.50	1.29	0.84	28.46	0.67	1246.6	6.9E-4	0.9732	0.5987	1.12
0.6693	8.0E-3	0.151	1.373							
	21.50	1.22	0.80	26.22	0.67	1183.8	7.0E-4	1.0000	0.6899	1.12
0.7714	9.3E-3	0.173	1.546							
	20.50	1.16	0.76	23.87	0.68	1118.9	7.0E-4	1.0000	0.7819	1.12
0.8742	1.0E-2	0.198	1.743							
	19.50	1.10	0.72	24.54	0.68	1100.1	6.8E-4	1.0000	0.7539	1.12
0.8429	1.0E-2	0.206	1.949							
	18.50	1.05	0.68	25.26	0.68	1080.6	6.6E-4	1.0000	0.7255	1.12
0.8112	9.7E-3	0.198	2.148							
	17.50	0.99	0.64	26.03	0.68	1060.5	6.3E-4	1.0000	0.6967	1.12
0.7789	9.3E-3	0.191	2.338							
	16.50	0.93	0.60	26.87	0.68	1039.5	6.1E-4	1.0000	0.6671	1.12
0.7459	9.0E-3	0.183	2.521							
	15.50	0.87	0.57	27.78	0.68	1017.7	5.9E-4	1.0000	0.6368	1.12
0.7120	8.5E-3	0.175	2.696							
	14.50	0.81	0.53	24.33	0.69	940.8	5.9E-4	1.0000	0.7623	1.12
0.8523	1.0E-2	0.182	2.878							
	13.50	0.76	0.49	23.77	0.69	899.8	5.8E-4	1.0000	0.7864	1.12
0.8793	1.1E-2	0.208	3.086							
	12.50	0.70	0.45	23.18	0.69	857.9	5.6E-4	1.0000	0.8125	1.12
0.9084	1.1E-2	0.215	3.301							
	11.50	0.64	0.42	22.59	0.69	815.1	5.4E-4	1.0000	0.8406	1.12
0.9399	1.1E-2	0.222	3.523							
	10.50	0.58	0.38	21.97	0.69	771.1	5.2E-4	1.0000	0.8713	1.12
0.9742	1.2E-2	0.230	3.752							
	9.50	0.53	0.34	20.76	0.69	719.3	5.1E-4	1.0000	0.9380	1.12
1.0488	1.3E-2	0.243	3.995							
	8.50	0.47	0.31	19.47	0.70	665.6	4.9E-4	1.0000	1.0198	1.12
1.1402	1.4E-2	0.263	4.258							
	7.50	0.42	0.27	15.98	0.70	585.4	5.0E-4	1.0000	1.3175	1.12
1.4731	1.8E-2	0.325	4.584							

Settlement of Dry Sands=4.584 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Dry Sands=4.584 in.
Differential Settlement=2.292 to 3.025 in.

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT)
fc	Friction from CPT testing
Gamma	Total unit weight of soil
Gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [tsf]
sigma'	Effective vertical stress [tsf]
sigC'	Effective confining pressure [tsf]

rd	Stress reduction coefficient
CSR	Cyclic stress ratio induced by earthquake
fs	User request factor of safety, apply to CSR
w/fs	With user request factor of safety inside
CSRfs	CSR with User request factor of safety
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksigma	Overburden stress correction factor for CRR7.5
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
MSF	Magnitude scaling factor for CRR (M=7.5)
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
F.S.	Factor of Safety against liquefaction F.S.=CRRm/CSRfs
Cebs	Energy Ratio, Borehole Dia., and Sample Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after seattlement fines corrections
ec	Volumetric strain for saturated sands
ds	Settlement in each Segment dz
dz	Segment for calculation, dz=0.050 ft
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

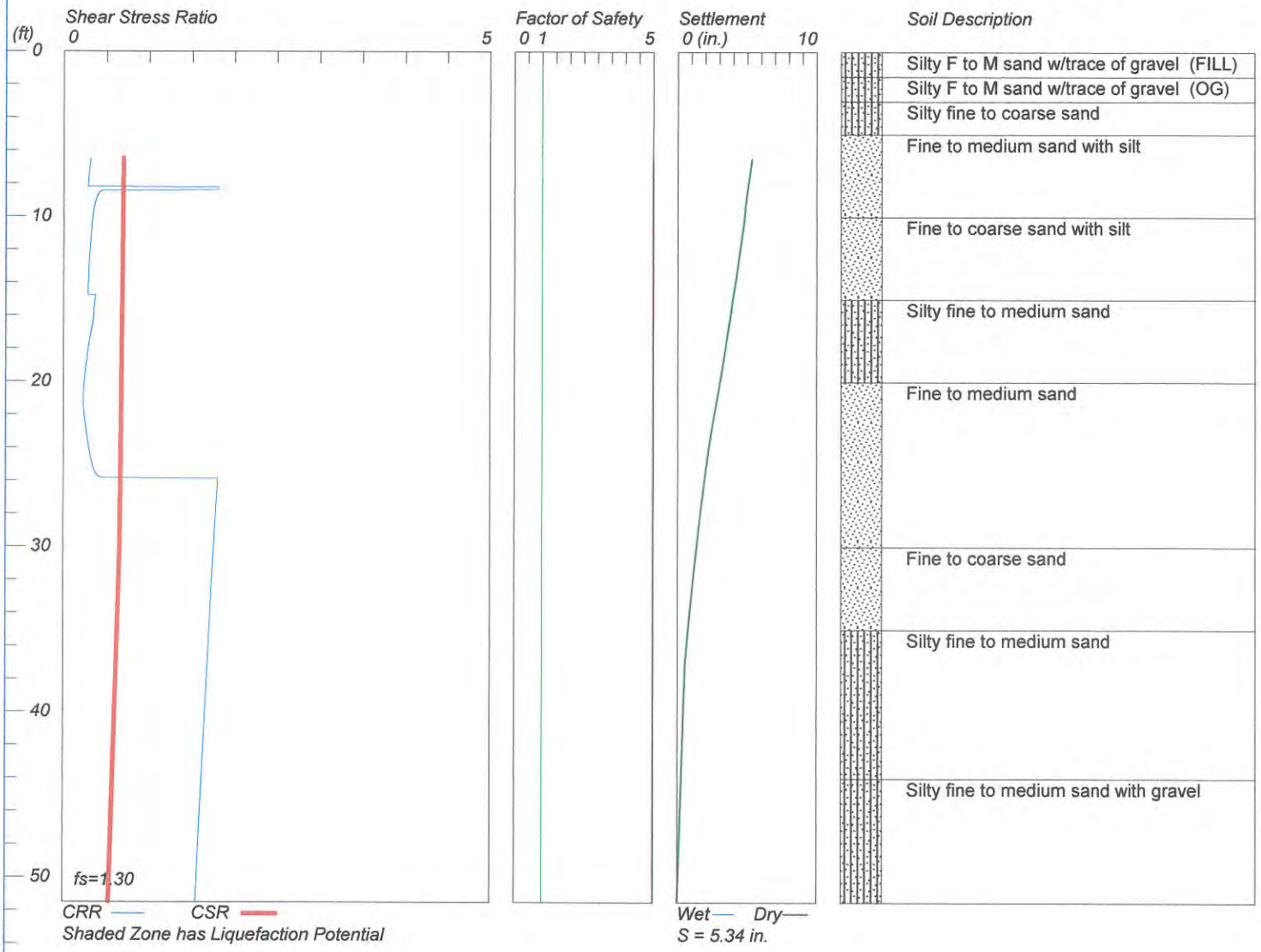
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

MORENO ELEMENTARY SCHOOL REPLACEMENT

Hole No.=B-18 Water Depth=100 ft

Magnitude=7.8
Acceleration=0.84g



LiquefyPro CivilTech Software USA www.civiltech.com

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LIQUEFACTION ANALYSIS CALCULATION SHEET

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Input File Name: P:\TerraServer\Liquefy4\S-14167 18.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Surface Elev.=
Hole No.=B-18
Depth of Hole= 51.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration= 0.84 g
Earthquake Magnitude= 7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Input Data:

Depth ft	SPT	Gamma pcf	Fines %
6.5	15.0	115.0	8.0
11.5	18.0	130.0	7.0
16.5	18.0	130.0	20.0
21.5	19.0	130.0	1.0
26.5	28.0	130.0	1.0
31.5	31.0	119.0	1.0
35.0	34.0	125.0	15.0
40.0	42.0	130.0	15.0
45.0	46.0	135.0	13.0
50.0	47.0	135.0	13.0

Output Results:
Settlement of saturated sands=0.00 in.
Settlement of dry sands=5.34 in.
Total settlement of saturated and dry sands=5.34 in.
Differential Settlement=2.672 to 3.527 in.

Depth ft	CRRm	CSRfs w/fs	F.S.	S_sat. in.	S_dry in.	S_all in.

6.50	0.32	0.70	5.00	0.00	5.34	5.34
7.50	0.30	0.70	5.00	0.00	5.17	5.17
8.50	0.43	0.70	5.00	0.00	5.00	5.00
9.50	0.36	0.69	5.00	0.00	4.86	4.86
10.50	0.33	0.69	5.00	0.00	4.74	4.74
11.50	0.32	0.69	5.00	0.00	4.58	4.58
12.50	0.30	0.69	5.00	0.00	4.41	4.41
13.50	0.29	0.69	5.00	0.00	4.23	4.23
14.50	0.29	0.69	5.00	0.00	4.05	4.05
15.50	0.36	0.68	5.00	0.00	3.88	3.88
16.50	0.35	0.68	5.00	0.00	3.70	3.70
17.50	0.30	0.68	5.00	0.00	3.53	3.53
18.50	0.28	0.68	5.00	0.00	3.34	3.34
19.50	0.26	0.68	5.00	0.00	3.15	3.15
20.50	0.24	0.68	5.00	0.00	2.95	2.95
21.50	0.23	0.67	5.00	0.00	2.74	2.74
22.50	0.26	0.67	5.00	0.00	2.54	2.54
23.50	0.28	0.67	5.00	0.00	2.35	2.35
24.50	0.31	0.67	5.00	0.00	2.17	2.17
25.50	0.37	0.67	5.00	0.00	2.01	2.01
26.50	1.80	0.67	5.00	0.00	1.86	1.86
27.50	1.79	0.66	5.00	0.00	1.72	1.72
28.50	1.77	0.66	5.00	0.00	1.58	1.58
29.50	1.76	0.66	5.00	0.00	1.45	1.45
30.50	1.75	0.66	5.00	0.00	1.32	1.32
31.50	1.74	0.65	5.00	0.00	1.19	1.19
32.50	1.73	0.65	5.00	0.00	1.07	1.07
33.50	1.72	0.64	5.00	0.00	0.94	0.94
34.50	1.71	0.63	5.00	0.00	0.83	0.83
35.50	1.70	0.63	5.00	0.00	0.72	0.72
36.50	1.69	0.62	5.00	0.00	0.61	0.61
37.50	1.68	0.62	5.00	0.00	0.54	0.54
38.50	1.67	0.61	5.00	0.00	0.50	0.50
39.50	1.66	0.61	5.00	0.00	0.46	0.46
40.50	1.65	0.60	5.00	0.00	0.43	0.43
41.50	1.64	0.59	5.00	0.00	0.39	0.39
42.50	1.63	0.59	5.00	0.00	0.35	0.35
43.50	1.62	0.58	5.00	0.00	0.31	0.31
44.50	1.61	0.58	5.00	0.00	0.27	0.27
45.50	1.60	0.57	5.00	0.00	0.24	0.24
46.50	1.60	0.56	5.00	0.00	0.20	0.20
47.50	1.59	0.56	5.00	0.00	0.16	0.16
48.50	1.58	0.55	5.00	0.00	0.12	0.12
49.50	1.57	0.55	5.00	0.00	0.08	0.08
50.50	1.56	0.54	5.00	0.00	0.04	0.04
51.50	1.55	0.54	5.00	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

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Input File Name: P:\TerraServer\Liquefy4\S-14167 18.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Input Data:

Surface Elev.=
Hole No.=B-18
Depth of Hole=51.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration=0.84 g
Earthquake Magnitude=7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Depth ft	SPT	Gamma pcf	Fines %
6.5	15.0	115.0	8.0
11.5	18.0	130.0	7.0
16.5	18.0	130.0	20.0
21.5	19.0	130.0	1.0
26.5	28.0	130.0	1.0
31.5	31.0	119.0	1.0
35.0	34.0	125.0	15.0
40.0	42.0	130.0	15.0
45.0	46.0	135.0	13.0
50.0	47.0	135.0	13.0

Output Results: (Interval = 1.00 ft)

CSR Calculation:

Depth ft	gamma pcf	sigma tsf	gamma' pcf	sigma' tsf	rd	CSR	fs (user)	CSRfs w/fs

6.50	115.0	0.374	115.0	0.374	0.98	0.54	1.3	0.70
7.50	118.0	0.432	118.0	0.432	0.98	0.54	1.3	0.70
8.50	121.0	0.492	121.0	0.492	0.98	0.54	1.3	0.70
9.50	124.0	0.553	124.0	0.553	0.98	0.53	1.3	0.69
10.50	127.0	0.616	127.0	0.616	0.98	0.53	1.3	0.69
11.50	130.0	0.680	130.0	0.680	0.97	0.53	1.3	0.69
12.50	130.0	0.745	130.0	0.745	0.97	0.53	1.3	0.69
13.50	130.0	0.810	130.0	0.810	0.97	0.53	1.3	0.69
14.50	130.0	0.875	130.0	0.875	0.97	0.53	1.3	0.69
15.50	130.0	0.940	130.0	0.940	0.96	0.53	1.3	0.68
16.50	130.0	1.005	130.0	1.005	0.96	0.52	1.3	0.68
17.50	130.0	1.070	130.0	1.070	0.96	0.52	1.3	0.68
18.50	130.0	1.135	130.0	1.135	0.96	0.52	1.3	0.68
19.50	130.0	1.200	130.0	1.200	0.95	0.52	1.3	0.68
20.50	130.0	1.265	130.0	1.265	0.95	0.52	1.3	0.68
21.50	130.0	1.330	130.0	1.330	0.95	0.52	1.3	0.67
22.50	130.0	1.395	130.0	1.395	0.95	0.52	1.3	0.67
23.50	130.0	1.460	130.0	1.460	0.95	0.52	1.3	0.67
24.50	130.0	1.525	130.0	1.525	0.94	0.51	1.3	0.67
25.50	130.0	1.590	130.0	1.590	0.94	0.51	1.3	0.67
26.50	130.0	1.655	130.0	1.655	0.94	0.51	1.3	0.67
27.50	127.8	1.719	127.8	1.719	0.94	0.51	1.3	0.66
28.50	125.6	1.783	125.6	1.783	0.93	0.51	1.3	0.66
29.50	123.4	1.845	123.4	1.845	0.93	0.51	1.3	0.66
30.50	121.2	1.906	121.2	1.906	0.93	0.51	1.3	0.66
31.50	119.0	1.966	119.0	1.966	0.92	0.50	1.3	0.65
32.50	120.7	2.026	120.7	2.026	0.91	0.50	1.3	0.65
33.50	122.4	2.087	122.4	2.087	0.90	0.49	1.3	0.64
34.50	124.1	2.148	124.1	2.148	0.89	0.49	1.3	0.63
35.50	125.5	2.211	125.5	2.211	0.89	0.48	1.3	0.63
36.50	126.5	2.274	126.5	2.274	0.88	0.48	1.3	0.62
37.50	127.5	2.337	127.5	2.337	0.87	0.47	1.3	0.62
38.50	128.5	2.401	128.5	2.401	0.86	0.47	1.3	0.61
39.50	129.5	2.466	129.5	2.466	0.85	0.47	1.3	0.61
40.50	130.5	2.531	130.5	2.531	0.84	0.46	1.3	0.60
41.50	131.5	2.596	131.5	2.596	0.84	0.46	1.3	0.59
42.50	132.5	2.662	132.5	2.662	0.83	0.45	1.3	0.59
43.50	133.5	2.729	133.5	2.729	0.82	0.45	1.3	0.58
44.50	134.5	2.796	134.5	2.796	0.81	0.44	1.3	0.58
45.50	135.0	2.863	135.0	2.863	0.80	0.44	1.3	0.57
46.50	135.0	2.931	135.0	2.931	0.80	0.43	1.3	0.56
47.50	135.0	2.998	135.0	2.998	0.79	0.43	1.3	0.56
48.50	135.0	3.066	135.0	3.066	0.78	0.43	1.3	0.55
49.50	135.0	3.133	135.0	3.133	0.77	0.42	1.3	0.55
50.50	135.0	3.201	135.0	3.201	0.76	0.42	1.3	0.54
51.50	135.0	3.268	135.0	3.268	0.75	0.41	1.3	0.54

CSR is based on water table at 100.0 during earthquake

CRR Calculation from SPT or BPT data:

(N1)60f	Depth ft	SPT	Cebs	Cr	sigma'	Cn	(N1)60	Fines %	d(N1)60	CRR7.5
	6.50	15.00	1.50	0.75	0.374	1.64	27.60	8.0	0.72	
28.32										0.35
	7.50	15.60	1.50	0.75	0.432	1.52	26.70	7.8	0.67	
27.37										0.33
	8.50	16.20	1.50	0.85	0.492	1.43	29.46	7.6	0.62	
30.08										0.48
	9.50	16.80	1.50	0.85	0.553	1.34	28.81	7.4	0.58	

29.38	0.39								
	10.50	17.40	1.50	0.85	0.616	1.27	28.28	7.2	0.53
28.80	0.37								
	11.50	18.00	1.50	0.85	0.680	1.21	27.83	7.0	0.48
28.31	0.35								
	12.50	18.00	1.50	0.85	0.745	1.16	26.59	9.6	1.10
27.70	0.34								
	13.50	18.00	1.50	0.85	0.810	1.11	25.50	12.2	1.73
27.23	0.32								
	14.50	18.00	1.50	0.85	0.875	1.07	24.54	14.8	2.35
26.89	0.32								
	15.50	18.00	1.50	0.95	0.940	1.03	26.46	17.4	2.98
29.43	0.40								
	16.50	18.00	1.50	0.95	1.005	1.00	25.59	20.0	3.60
29.19	0.38								
	17.50	18.20	1.50	0.95	1.070	0.97	25.07	16.2	2.69
27.76	0.34								
	18.50	18.40	1.50	0.95	1.135	0.94	24.61	12.4	1.78
26.39	0.31								
	19.50	18.60	1.50	0.95	1.200	0.91	24.20	8.6	0.86
25.06	0.28								
	20.50	18.80	1.50	0.95	1.265	0.89	23.82	4.8	0.00
23.82	0.26								
	21.50	19.00	1.50	0.95	1.330	0.87	23.48	1.0	0.00
23.48	0.26								
	22.50	20.80	1.50	0.95	1.395	0.85	25.10	1.0	0.00
25.10	0.28								
	23.50	22.60	1.50	0.95	1.460	0.83	26.65	1.0	0.00
26.65	0.31								
	24.50	24.40	1.50	0.95	1.525	0.81	28.16	1.0	0.00
28.16	0.35								
	25.50	26.20	1.50	0.95	1.590	0.79	29.61	1.0	0.00
29.61	0.41								
	26.50	28.00	1.50	0.95	1.655	0.78	31.02	1.0	0.00
31.02	2.00								
	27.50	28.60	1.50	0.95	1.719	0.76	31.08	1.0	0.00
31.08	2.00								
	28.50	29.20	1.50	1.00	1.783	0.75	32.80	1.0	0.00
32.80	2.00								
	29.50	29.80	1.50	1.00	1.845	0.74	32.91	1.0	0.00
32.91	2.00								
	30.50	30.40	1.50	1.00	1.906	0.72	33.03	1.0	0.00
33.03	2.00								
	31.50	31.00	1.50	1.00	1.966	0.71	33.16	1.0	0.00
33.16	2.00								
	32.50	31.86	1.50	1.00	2.026	0.70	33.57	5.0	0.00
33.57	2.00								
	33.50	32.71	1.50	1.00	2.087	0.69	33.97	9.0	0.96
34.93	2.00								
	34.50	33.57	1.50	1.00	2.148	0.68	34.36	13.0	1.92
36.27	2.00								
	35.50	34.80	1.50	1.00	2.211	0.67	35.11	15.0	2.40
37.51	2.00								
	36.50	36.40	1.50	1.00	2.274	0.66	36.21	15.0	2.40
38.61	2.00								
	37.50	38.00	1.50	1.00	2.337	0.65	37.28	15.0	2.40
39.68	2.00								
	38.50	39.60	1.50	1.00	2.401	0.65	38.33	15.0	2.40
40.73	2.00								
	39.50	41.20	1.50	1.00	2.466	0.64	39.35	15.0	2.40
41.75	2.00								
	40.50	42.40	1.50	1.00	2.531	0.63	39.98	14.8	2.35
42.33	2.00								

41.50	43.20	1.50	1.00	2.596	0.62	40.22	14.4	2.26
42.47	2.00							
42.50	44.00	1.50	1.00	2.662	0.61	40.45	14.0	2.16
42.61	2.00							
43.50	44.80	1.50	1.00	2.729	0.61	40.68	13.6	2.06
42.74	2.00							
44.50	45.60	1.50	1.00	2.796	0.60	40.91	13.2	1.97
42.88	2.00							
45.50	46.10	1.50	1.00	2.863	0.59	40.87	13.0	1.92
42.79	2.00							
46.50	46.30	1.50	1.00	2.931	0.58	40.57	13.0	1.92
42.49	2.00							
47.50	46.50	1.50	1.00	2.998	0.58	40.28	13.0	1.92
42.20	2.00							
48.50	46.70	1.50	1.00	3.066	0.57	40.01	13.0	1.92
41.93	2.00							
49.50	46.90	1.50	1.00	3.133	0.56	39.74	13.0	1.92
41.66	2.00							
50.50	47.00	1.50	1.00	3.201	0.56	39.41	13.0	1.92
41.33	2.00							
51.50	47.00	1.50	1.00	3.268	0.55	39.00	13.0	1.92
40.92	2.00							

CRR is based on water table at 100.0 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.8:

Depth ft	sigC' tsf	CRR7.5 tsf	Ksigma	CRRv	MSF	CRRm	CSRfs w/fs	F.S. CRRm/CSRfs
6.50	0.24	0.35	1.00	0.35	0.90	0.32	0.70	5.00
7.50	0.28	0.33	1.00	0.33	0.90	0.30	0.70	5.00
8.50	0.32	0.48	1.00	0.48	0.90	0.43	0.70	5.00
9.50	0.36	0.39	1.00	0.39	0.90	0.36	0.69	5.00
10.50	0.40	0.37	1.00	0.37	0.90	0.33	0.69	5.00
11.50	0.44	0.35	1.00	0.35	0.90	0.32	0.69	5.00
12.50	0.48	0.34	1.00	0.34	0.90	0.30	0.69	5.00
13.50	0.53	0.32	1.00	0.32	0.90	0.29	0.69	5.00
14.50	0.57	0.32	1.00	0.32	0.90	0.29	0.69	5.00
15.50	0.61	0.40	1.00	0.40	0.90	0.36	0.68	5.00
16.50	0.65	0.38	1.00	0.38	0.90	0.35	0.68	5.00
17.50	0.70	0.34	1.00	0.34	0.90	0.30	0.68	5.00
18.50	0.74	0.31	1.00	0.31	0.90	0.28	0.68	5.00
19.50	0.78	0.28	1.00	0.28	0.90	0.26	0.68	5.00
20.50	0.82	0.26	1.00	0.26	0.90	0.24	0.68	5.00
21.50	0.86	0.26	1.00	0.26	0.90	0.23	0.67	5.00
22.50	0.91	0.28	1.00	0.28	0.90	0.26	0.67	5.00
23.50	0.95	0.31	1.00	0.31	0.90	0.28	0.67	5.00
24.50	0.99	0.35	1.00	0.35	0.90	0.31	0.67	5.00
25.50	1.03	0.41	1.00	0.41	0.90	0.37	0.67	5.00
26.50	1.08	2.00	0.99	1.99	0.90	1.80	0.67	5.00
27.50	1.12	2.00	0.99	1.98	0.90	1.79	0.66	5.00
28.50	1.16	2.00	0.98	1.96	0.90	1.77	0.66	5.00
29.50	1.20	2.00	0.98	1.95	0.90	1.76	0.66	5.00
30.50	1.24	2.00	0.97	1.94	0.90	1.75	0.66	5.00
31.50	1.28	2.00	0.96	1.93	0.90	1.74	0.65	5.00
32.50	1.32	2.00	0.96	1.92	0.90	1.73	0.65	5.00
33.50	1.36	2.00	0.95	1.91	0.90	1.72	0.64	5.00
34.50	1.40	2.00	0.95	1.89	0.90	1.71	0.63	5.00
35.50	1.44	2.00	0.94	1.88	0.90	1.70	0.63	5.00
36.50	1.48	2.00	0.94	1.87	0.90	1.69	0.62	5.00
37.50	1.52	2.00	0.93	1.86	0.90	1.68	0.62	5.00

38.50	1.56	2.00	0.92	1.85	0.90	1.67	0.61	5.00
39.50	1.60	2.00	0.92	1.84	0.90	1.66	0.61	5.00
40.50	1.65	2.00	0.91	1.83	0.90	1.65	0.60	5.00
41.50	1.69	2.00	0.91	1.82	0.90	1.64	0.59	5.00
42.50	1.73	2.00	0.90	1.81	0.90	1.63	0.59	5.00
43.50	1.77	2.00	0.90	1.80	0.90	1.62	0.58	5.00
44.50	1.82	2.00	0.89	1.79	0.90	1.61	0.58	5.00
45.50	1.86	2.00	0.89	1.78	0.90	1.60	0.57	5.00
46.50	1.90	2.00	0.88	1.76	0.90	1.60	0.56	5.00
47.50	1.95	2.00	0.88	1.75	0.90	1.59	0.56	5.00
48.50	1.99	2.00	0.87	1.75	0.90	1.58	0.55	5.00
49.50	2.04	2.00	0.87	1.74	0.90	1.57	0.55	5.00
50.50	2.08	2.00	0.86	1.73	0.90	1.56	0.54	5.00
51.50	2.12	2.00	0.86	1.72	0.90	1.55	0.54	5.00

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 tsf	(N1)60	Fines %	d(N1)60	(N1)60s
6.50	-	-	-	27.60	8.0	0.75	28.36
7.50	-	-	-	26.70	7.8	0.74	27.44
8.50	-	-	-	29.46	7.6	0.72	30.17
9.50	-	-	-	28.81	7.4	0.70	29.51
10.50	-	-	-	28.28	7.2	0.68	28.96
11.50	-	-	-	27.83	7.0	0.66	28.50
12.50	-	-	-	26.59	9.6	0.90	27.49
13.50	-	-	-	25.50	12.2	1.13	26.63
14.50	-	-	-	24.54	14.8	1.35	25.89
15.50	-	-	-	26.46	17.4	1.57	28.03
16.50	-	-	-	25.59	20.0	1.79	27.38
17.50	-	-	-	25.07	16.2	1.47	26.55
18.50	-	-	-	24.61	12.4	1.15	25.76
19.50	-	-	-	24.20	8.6	0.81	25.01
20.50	-	-	-	23.82	4.8	0.46	24.28
21.50	-	-	-	23.48	1.0	0.10	23.58
22.50	-	-	-	25.10	1.0	0.10	25.19
23.50	-	-	-	26.65	1.0	0.10	26.75
24.50	-	-	-	28.16	1.0	0.10	28.25
25.50	-	-	-	29.61	1.0	0.10	29.71
26.50	-	-	-	31.02	1.0	0.10	31.11
27.50	-	-	-	31.08	1.0	0.10	31.18
28.50	-	-	-	32.80	1.0	0.10	32.90
29.50	-	-	-	32.91	1.0	0.10	33.01
30.50	-	-	-	33.03	1.0	0.10	33.13
31.50	-	-	-	33.16	1.0	0.10	33.26
32.50	-	-	-	33.57	5.0	0.48	34.05
33.50	-	-	-	33.97	9.0	0.84	34.81
34.50	-	-	-	34.36	13.0	1.20	35.55
35.50	-	-	-	35.11	15.0	1.37	36.48
36.50	-	-	-	36.21	15.0	1.37	37.58
37.50	-	-	-	37.28	15.0	1.37	38.65
38.50	-	-	-	38.33	15.0	1.37	39.70
39.50	-	-	-	39.35	15.0	1.37	40.73
40.50	-	-	-	39.98	14.8	1.35	41.33
41.50	-	-	-	40.22	14.4	1.32	41.54
42.50	-	-	-	40.45	14.0	1.29	41.73
43.50	-	-	-	40.68	13.6	1.25	41.93
44.50	-	-	-	40.91	13.2	1.22	42.12

45.50	-	-	-	40.87	13.0	1.20	42.06
46.50	-	-	-	40.57	13.0	1.20	41.77
47.50	-	-	-	40.28	13.0	1.20	41.48
48.50	-	-	-	40.01	13.0	1.20	41.21
49.50	-	-	-	39.74	13.0	1.20	40.94
50.50	-	-	-	39.41	13.0	1.20	40.60
51.50	-	-	-	39.00	13.0	1.20	40.20

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine*

Depth	CSRfs	F.S.	Fines	(N1)60s	Dr	ec	dsz	dsv	S
ft	w/fs		%		%	%	in.	in.	in.

Settlement of Saturated Sands=0.000 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Settlement of Dry Sands:

Depth	sigma'	sigC'	(N1)60s	CSRfs	Gmax	g*Ge/Gm	g_eff	ec7.5	Cec	ec
ft	dsz	dsv	S							
	tsf	tsf		w/fs	tsf			%		%
	in.	in.	in.							
51.45	3.26	2.12	40.22	0.54	2229.3	7.9E-4	0.4793	0.1516	1.12	0.1695
	2.0E-3	0.002	0.002							
50.50	3.20	2.08	40.60	0.54	2214.4	7.8E-4	0.4744	0.1500	1.12	0.1677
	2.0E-3	0.038	0.040							
49.50	3.13	2.04	40.94	0.55	2197.0	7.8E-4	0.4698	0.1486	1.12	0.1661
	2.0E-3	0.040	0.080							
48.50	3.07	1.99	41.21	0.55	2177.8	7.8E-4	0.4657	0.1473	1.12	0.1646
	2.0E-3	0.040	0.120							
47.50	3.00	1.95	41.48	0.56	2158.5	7.8E-4	0.4609	0.1458	1.12	0.1630
	2.0E-3	0.039	0.159							
46.50	2.93	1.90	41.77	0.56	2138.9	7.7E-4	0.4556	0.1441	1.12	0.1611
	1.9E-3	0.039	0.198							
45.50	2.86	1.86	42.06	0.57	2119.2	7.7E-4	0.4496	0.1422	1.12	0.1590
	1.9E-3	0.038	0.237							
44.50	2.80	1.82	42.12	0.58	2095.0	7.7E-4	0.4460	0.1410	1.12	0.1577
	1.9E-3	0.038	0.275							
43.50	2.73	1.77	41.93	0.58	2066.6	7.7E-4	0.4451	0.1407	1.12	0.1574
	1.9E-3	0.038	0.313							
42.50	2.66	1.73	41.73	0.59	2038.1	7.7E-4	0.4437	0.1403	1.12	0.1569
	1.9E-3	0.038	0.350							
41.50	2.60	1.69	41.54	0.59	2009.5	7.7E-4	0.4419	0.1397	1.12	0.1562
	1.9E-3	0.038	0.388							
40.50	2.53	1.65	41.33	0.60	1980.8	7.7E-4	0.4397	0.1391	1.12	0.1555
	1.9E-3	0.037	0.425							
39.50	2.47	1.60	40.73	0.61	1945.6	7.7E-4	0.4420	0.1398	1.12	0.1563
	1.9E-3	0.037	0.463							
38.50	2.40	1.56	39.70	0.61	1903.7	7.7E-4	0.4492	0.1447	1.12	0.1618
	1.9E-3	0.038	0.500							
37.50	2.34	1.52	38.65	0.62	1861.5	7.7E-4	0.4567	0.1584	1.12	0.1771
	2.1E-3	0.041	0.541							
36.50	2.27	1.48	37.58	0.62	1818.9	7.8E-4	1.0000	0.3725	1.12	0.4164
	5.0E-3	0.074	0.615							

	35.50	2.21	1.44	36.48	0.63	1775.9	7.8E-4	1.0000	0.3992	1.12
0.4463	5.4E-3	0.104	0.718							
	34.50	2.15	1.40	35.55	0.63	1735.7	7.8E-4	1.0000	0.4219	1.12
0.4717	5.7E-3	0.111	0.829							
	33.50	2.09	1.36	34.81	0.64	1698.7	7.9E-4	1.0000	0.4404	1.12
0.4924	5.9E-3	0.116	0.945							
	32.50	2.03	1.32	34.05	0.65	1661.5	7.9E-4	1.0000	0.4598	1.12
0.5141	6.2E-3	0.121	1.066							
	31.50	1.97	1.28	33.26	0.65	1624.0	7.9E-4	1.0000	0.4801	1.12
0.5368	6.4E-3	0.126	1.192							
	30.50	1.91	1.24	33.13	0.66	1596.8	7.8E-4	1.0000	0.4836	1.12
0.5407	6.5E-3	0.129	1.321							
	29.50	1.84	1.20	33.01	0.66	1569.1	7.8E-4	1.0000	0.4867	1.12
0.5442	6.5E-3	0.130	1.452							
	28.50	1.78	1.16	32.90	0.66	1540.8	7.7E-4	1.0000	0.4895	1.12
0.5473	6.6E-3	0.131	1.583							
	27.50	1.72	1.12	31.18	0.66	1486.3	7.7E-4	1.0000	0.5358	1.12
0.5991	7.2E-3	0.136	1.719							
	26.50	1.65	1.08	31.11	0.67	1457.1	7.6E-4	1.0000	0.5376	1.12
0.6011	7.2E-3	0.144	1.863							
	25.50	1.59	1.03	29.71	0.67	1406.4	7.5E-4	1.0000	0.5776	1.12
0.6458	7.7E-3	0.150	2.013							
	24.50	1.52	0.99	28.25	0.67	1354.5	7.5E-4	1.0000	0.6217	1.12
0.6951	8.3E-3	0.161	2.174							
	23.50	1.46	0.95	26.75	0.67	1301.5	7.5E-4	1.0000	0.6712	1.12
0.7504	9.0E-3	0.174	2.348							
	22.50	1.39	0.91	25.19	0.67	1247.0	7.5E-4	1.0000	0.7280	1.12
0.8139	9.8E-3	0.188	2.535							
	21.50	1.33	0.86	23.58	0.67	1191.0	7.5E-4	1.0000	0.7948	1.12
0.8886	1.1E-2	0.204	2.740							
	20.50	1.26	0.82	24.28	0.68	1172.9	7.3E-4	1.0000	0.7646	1.12
0.8549	1.0E-2	0.209	2.949							
	19.50	1.20	0.78	25.01	0.68	1153.7	7.0E-4	1.0000	0.7353	1.12
0.8221	9.9E-3	0.201	3.150							
	18.50	1.13	0.74	25.76	0.68	1133.1	6.8E-4	1.0000	0.7066	1.12
0.7900	9.5E-3	0.190	3.340							
	17.50	1.07	0.70	26.55	0.68	1111.3	6.6E-4	1.0000	0.6782	1.12
0.7583	9.1E-3	0.186	3.526							
	16.50	1.00	0.65	27.38	0.68	1088.1	6.3E-4	1.0000	0.6500	1.12
0.7268	8.7E-3	0.178	3.704							
	15.50	0.94	0.61	28.03	0.68	1060.6	6.1E-4	1.0000	0.6287	1.12
0.7030	8.4E-3	0.171	3.875							
	14.50	0.87	0.57	25.89	0.69	996.6	6.0E-4	1.0000	0.7017	1.12
0.7846	9.4E-3	0.173	4.048							
	13.50	0.81	0.53	26.63	0.69	967.9	5.8E-4	1.0000	0.6753	1.12
0.7550	9.1E-3	0.185	4.233							
	12.50	0.74	0.48	27.49	0.69	938.1	5.5E-4	1.0000	0.6463	1.12
0.7226	8.7E-3	0.177	4.410							
	11.50	0.68	0.44	28.50	0.69	907.0	5.2E-4	1.0000	0.6141	1.12
0.6866	8.2E-3	0.169	4.579							
	10.50	0.62	0.40	28.96	0.69	867.7	4.9E-4	0.9217	0.5531	1.12
0.6183	7.4E-3	0.161	4.740							
	9.50	0.55	0.36	29.51	0.69	827.5	4.6E-4	0.6384	0.3725	1.12
0.4165	5.0E-3	0.122	4.862							
	8.50	0.49	0.32	30.17	0.70	786.2	4.4E-4	1.0000	0.5641	1.12
0.6307	7.6E-3	0.142	5.004							
	7.50	0.43	0.28	27.44	0.70	713.9	4.2E-4	1.0000	0.6480	1.12
0.7245	8.7E-3	0.170	5.173							
	6.50	0.37	0.24	28.36	0.70	671.4	3.9E-4	1.0000	0.6185	1.12
0.6915	8.3E-3	0.170	5.343							

Settlement of Dry Sands=5.343 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Dry Sands=5.343 in.
Differential Settlement=2.672 to 3.527 in.

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT)
fc	Friction from CPT testing
Gamma	Total unit weight of soil
Gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [tsf]
sigma'	Effective vertical stress [tsf]
sigC'	Effective confining pressure [tsf]
rd	Stress reduction coefficient
CSR	Cyclic stress ratio induced by earthquake
fs	User request factor of safety, apply to CSR
w/fs	With user request factor of safety inside
CSRfs	CSR with User request factor of safety
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksigma	Overburden stress correction factor for CRR7.5
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
MSF	Magnitude scaling factor for CRR (M=7.5)
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
F.S.	Factor of Safety against liquefaction F.S.=CRRm/CSRfs
Cebs	Energy Ratio, Borehole Dia., and Sample Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after seattlement fines corrections
ec	Volumetric strain for saturated sands
ds	Settlement in each Segment dz
dz	Segment for calculation, dz=0.050 ft
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

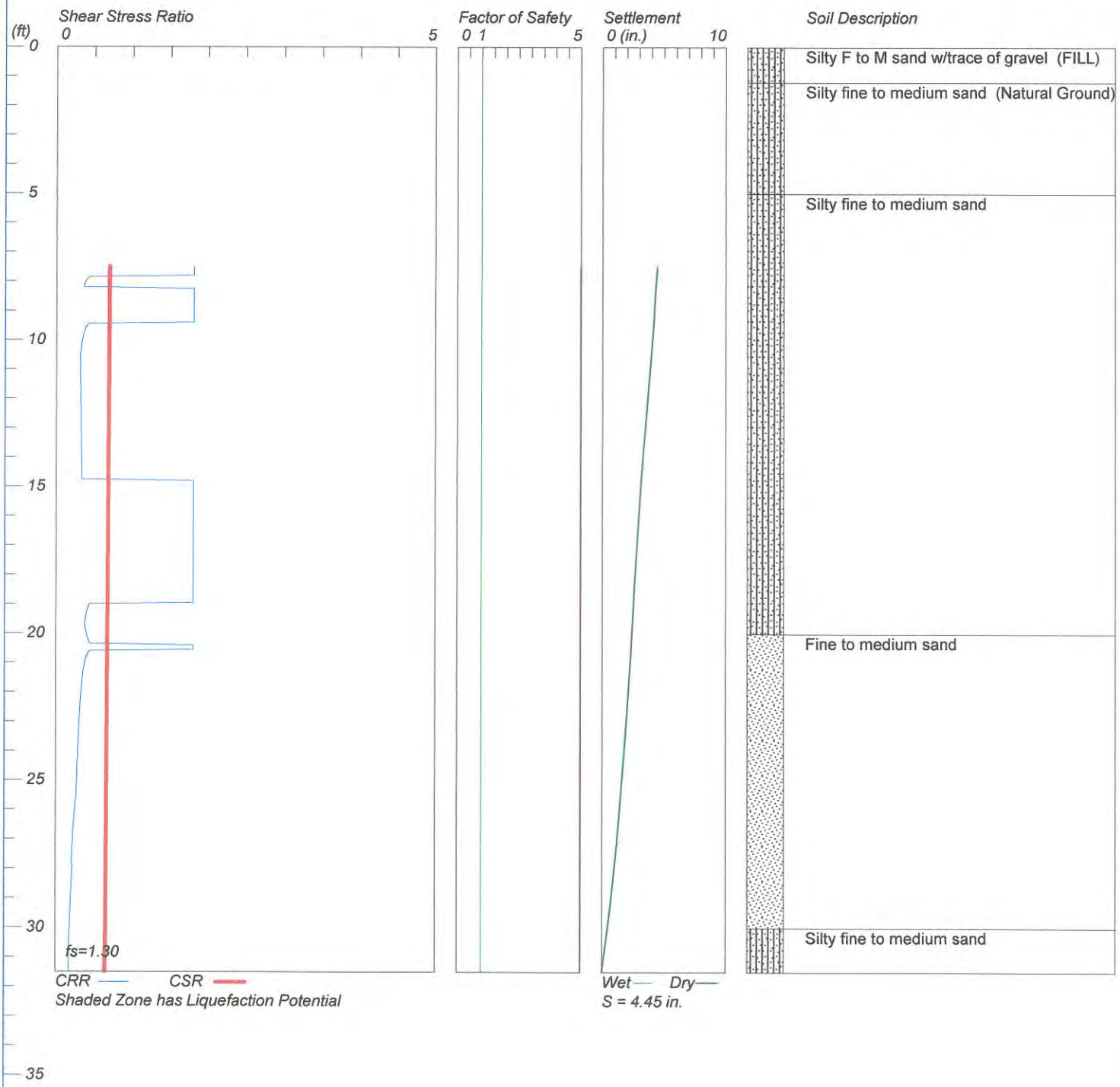
SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

LIQUEFACTION ANALYSIS

MORENO ELEMENTARY SCHOOL REPLACEMENT

Hole No.=B-20 Water Depth=100 ft

Magnitude=7.8
Acceleration=0.84g



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Input File Name: P:\TerraServer\Liquefy4\S-14167 20.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Surface Elev.=
Hole No.=B-20
Depth of Hole= 31.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration= 0.84 g
Earthquake Magnitude= 7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Input Data:

Depth ft	SPT	Gamma pcf	Fines %
7.5	16.0	127.0	25.0
10.5	15.0	129.0	25.0
15.5	19.0	123.0	25.0
20.5	24.0	116.0	1.0
25.5	23.0	113.0	1.0
30.5	14.0	113.0	20.0

Output Results:
Settlement of saturated sands=0.00 in.
Settlement of dry sands=4.45 in.
Total settlement of saturated and dry sands=4.45 in.
Differential Settlement=2.227 to 2.940 in.

Depth ft	CRRm	CSRfs w/fs	F.S.	S_sat. in.	S_dry in.	S_all in.
7.50	1.81	0.70	5.00	0.00	4.45	4.45
8.50	1.81	0.70	5.00	0.00	4.29	4.29
9.50	0.41	0.69	5.00	0.00	4.16	4.16

10.50	0.31	0.69	5.00	0.00	3.97	3.97
11.50	0.32	0.69	5.00	0.00	3.78	3.78
12.50	0.32	0.69	5.00	0.00	3.59	3.59
13.50	0.33	0.69	5.00	0.00	3.41	3.41
14.50	0.34	0.69	5.00	0.00	3.22	3.22
15.50	1.81	0.68	5.00	0.00	3.06	3.06
16.50	1.81	0.68	5.00	0.00	2.90	2.90
17.50	1.81	0.68	5.00	0.00	2.75	2.75
18.50	1.81	0.68	5.00	0.00	2.60	2.60
19.50	0.39	0.68	5.00	0.00	2.49	2.49
20.50	1.81	0.68	5.00	0.00	2.36	2.36
21.50	0.35	0.67	5.00	0.00	2.22	2.22
22.50	0.32	0.67	5.00	0.00	2.05	2.05
23.50	0.30	0.67	5.00	0.00	1.89	1.89
24.50	0.29	0.67	5.00	0.00	1.71	1.71
25.50	0.27	0.67	5.00	0.00	1.53	1.53
26.50	0.24	0.67	5.00	0.00	1.34	1.34
27.50	0.22	0.66	5.00	0.00	1.12	1.12
28.50	0.21	0.66	5.00	0.00	0.88	0.88
29.50	0.20	0.66	5.00	0.00	0.62	0.62
30.50	0.18	0.66	5.00	0.00	0.32	0.32
31.50	0.18	0.65	5.00	0.00	0.00	0.00

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* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRm Cyclic resistance ratio from soils
CSRfs Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S. Factor of Safety against liquefaction, F.S.=CRRm/CSRfs
S_sat Settlement from saturated sands
S_dry Settlement from dry sands
S_all Total settlement from saturated and dry sands
NoLiq No-Liquefy Soils

****

LIQUEFACTION ANALYSIS CALCULATION SHEET

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****

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Input File Name: P:\TerraServer\Liquefy4\S-14167 20.liq
Title: MORENO ELEMENTARY SCHOOL REPLACEMENT
Subtitle: S-14167

Input Data:

Surface Elev.=
Hole No.=B-20
Depth of Hole=31.5 ft
Water Table during Earthquake= 100.0 ft
Water Table during In-Situ Testing= 100.0 ft
Max. Acceleration=0.84 g
Earthquake Magnitude=7.8
User defined factor of safty (applied to CSR) User fs=1.3
fs=user, Plot one CSR (fs=user)

Hammer Energy Ratio, Ce=1.25
Borehole Diameter, Cb=1
Sampeling Method, Cs=1.2
SPT Fines Correction Method: Stark/Olson et al.*
Settlement Analysis Method: Ishihara / Yoshimine*
Fines Correction for Liquefaction: Stark/Olson et al.*
Fine Correction for Settlement: Post-Liq. Correction *
Average Input Data: Smooth*
* Recommended Options

Depth ft	SPT	Gamma pcf	Fines %
7.5	16.0	127.0	25.0
10.5	15.0	129.0	25.0
15.5	19.0	123.0	25.0
20.5	24.0	116.0	1.0
25.5	23.0	113.0	1.0
30.5	14.0	113.0	20.0

Output Results: (Interval = 1.00 ft)

CSR Calculation:

Depth ft	gamma pcf	sigma tsf	gamma' pcf	sigma' tsf	rd	CSR	fs (user)	CSRfs w/fs
7.50	127.0	0.476	127.0	0.476	0.98	0.54	1.3	0.70
8.50	127.7	0.540	127.7	0.540	0.98	0.54	1.3	0.70
9.50	128.3	0.604	128.3	0.604	0.98	0.53	1.3	0.69
10.50	129.0	0.668	129.0	0.668	0.98	0.53	1.3	0.69

11.50	127.8	0.732	127.8	0.732	0.97	0.53	1.3	0.69
12.50	126.6	0.796	126.6	0.796	0.97	0.53	1.3	0.69
13.50	125.4	0.859	125.4	0.859	0.97	0.53	1.3	0.69
14.50	124.2	0.921	124.2	0.921	0.97	0.53	1.3	0.69
15.50	123.0	0.983	123.0	0.983	0.96	0.53	1.3	0.68
16.50	121.6	1.044	121.6	1.044	0.96	0.52	1.3	0.68
17.50	120.2	1.105	120.2	1.105	0.96	0.52	1.3	0.68
18.50	118.8	1.165	118.8	1.165	0.96	0.52	1.3	0.68
19.50	117.4	1.224	117.4	1.224	0.95	0.52	1.3	0.68
20.50	116.0	1.282	116.0	1.282	0.95	0.52	1.3	0.68
21.50	115.4	1.340	115.4	1.340	0.95	0.52	1.3	0.67
22.50	114.8	1.398	114.8	1.398	0.95	0.52	1.3	0.67
23.50	114.2	1.455	114.2	1.455	0.95	0.52	1.3	0.67
24.50	113.6	1.512	113.6	1.512	0.94	0.51	1.3	0.67
25.50	113.0	1.568	113.0	1.568	0.94	0.51	1.3	0.67
26.50	113.0	1.625	113.0	1.625	0.94	0.51	1.3	0.67
27.50	113.0	1.681	113.0	1.681	0.94	0.51	1.3	0.66
28.50	113.0	1.738	113.0	1.738	0.93	0.51	1.3	0.66
29.50	113.0	1.794	113.0	1.794	0.93	0.51	1.3	0.66
30.50	113.0	1.851	113.0	1.851	0.93	0.51	1.3	0.66
31.50	113.0	1.907	113.0	1.907	0.92	0.50	1.3	0.65

CSR is based on water table at 100.0 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma'	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
7.50	16.00	1.50	0.75	0.476	1.45	26.08	25.0	4.80	30.88	2.00
8.50	15.67	1.50	0.85	0.540	1.36	27.18	25.0	4.80	31.98	2.00
9.50	15.33	1.50	0.85	0.604	1.29	25.16	25.0	4.80	29.96	0.45
10.50	15.00	1.50	0.85	0.668	1.22	23.40	25.0	4.80	28.20	0.35
11.50	15.80	1.50	0.85	0.732	1.17	23.54	25.0	4.80	28.34	0.35
12.50	16.60	1.50	0.85	0.796	1.12	23.72	25.0	4.80	28.52	0.36
13.50	17.40	1.50	0.85	0.859	1.08	23.94	25.0	4.80	28.74	0.36
14.50	18.20	1.50	0.85	0.921	1.04	24.17	25.0	4.80	28.97	0.37
15.50	19.00	1.50	0.95	0.983	1.01	27.30	25.0	4.80	32.10	2.00
16.50	20.00	1.50	0.95	1.044	0.98	27.89	20.2	3.65	31.53	2.00
17.50	21.00	1.50	0.95	1.105	0.95	28.47	15.4	2.50	30.96	2.00
18.50	22.00	1.50	0.95	1.165	0.93	29.05	10.6	1.34	30.39	2.00
19.50	23.00	1.50	0.95	1.224	0.90	29.63	5.8	0.19	29.82	0.43
20.50	24.00	1.50	0.95	1.282	0.88	30.20	1.0	0.00	30.20	2.00
21.50	23.80	1.50	0.95	1.340	0.86	29.30	1.0	0.00	29.30	0.39
22.50	23.60	1.50	0.95	1.398	0.85	28.45	1.0	0.00	28.45	0.36

23.50	23.40	1.50	0.95	1.455	0.83	27.65	1.0	0.00
27.65	0.33							
24.50	23.20	1.50	0.95	1.512	0.81	26.89	1.0	0.00
26.89	0.32							
25.50	23.00	1.50	0.95	1.568	0.80	26.17	1.0	0.00
26.17	0.30							
26.50	21.20	1.50	0.95	1.625	0.78	23.70	4.8	0.00
23.70	0.26							
27.50	19.40	1.50	0.95	1.681	0.77	21.32	8.6	0.86
22.18	0.24							
28.50	17.60	1.50	1.00	1.738	0.76	20.03	12.4	1.78
21.80	0.24							
29.50	15.80	1.50	1.00	1.794	0.75	17.69	16.2	2.69
20.38	0.22							
30.50	14.00	1.50	1.00	1.851	0.74	15.44	20.0	3.60
19.04	0.21							
31.50	14.00	1.50	1.00	1.907	0.72	15.21	20.0	3.60
18.81	0.20							

CRR is based on water table at 100.0 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.8:

Depth ft	sigC' tsf	CRR7.5 tsf	Ksigma	CRRv	MSF	CRRm	CSRfs w/fs	F.S. CRRm/CSRfs
7.50	0.31	2.00	1.00	2.00	0.90	1.81	0.70	5.00
8.50	0.35	2.00	1.00	2.00	0.90	1.81	0.70	5.00
9.50	0.39	0.45	1.00	0.45	0.90	0.41	0.69	5.00
10.50	0.43	0.35	1.00	0.35	0.90	0.31	0.69	5.00
11.50	0.48	0.35	1.00	0.35	0.90	0.32	0.69	5.00
12.50	0.52	0.36	1.00	0.36	0.90	0.32	0.69	5.00
13.50	0.56	0.36	1.00	0.36	0.90	0.33	0.69	5.00
14.50	0.60	0.37	1.00	0.37	0.90	0.34	0.69	5.00
15.50	0.64	2.00	1.00	2.00	0.90	1.81	0.68	5.00
16.50	0.68	2.00	1.00	2.00	0.90	1.81	0.68	5.00
17.50	0.72	2.00	1.00	2.00	0.90	1.81	0.68	5.00
18.50	0.76	2.00	1.00	2.00	0.90	1.81	0.68	5.00
19.50	0.80	0.43	1.00	0.43	0.90	0.39	0.68	5.00
20.50	0.83	2.00	1.00	2.00	0.90	1.81	0.68	5.00
21.50	0.87	0.39	1.00	0.39	0.90	0.35	0.67	5.00
22.50	0.91	0.36	1.00	0.36	0.90	0.32	0.67	5.00
23.50	0.95	0.33	1.00	0.33	0.90	0.30	0.67	5.00
24.50	0.98	0.32	1.00	0.32	0.90	0.29	0.67	5.00
25.50	1.02	0.30	1.00	0.30	0.90	0.27	0.67	5.00
26.50	1.06	0.26	1.00	0.26	0.90	0.24	0.67	5.00
27.50	1.09	0.24	0.99	0.24	0.90	0.22	0.66	5.00
28.50	1.13	0.24	0.99	0.23	0.90	0.21	0.66	5.00
29.50	1.17	0.22	0.98	0.22	0.90	0.20	0.66	5.00
30.50	1.20	0.21	0.97	0.20	0.90	0.18	0.66	5.00
31.50	1.24	0.20	0.97	0.20	0.90	0.18	0.65	5.00

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 tsf	(N1)60	Fines %	d(N1)60	(N1)60s
7.50	-	-	-	26.08	25.0	2.19	28.27

8.50	-	-	-	27.18	25.0	2.19	29.37
9.50	-	-	-	25.16	25.0	2.19	27.34
10.50	-	-	-	23.40	25.0	2.19	25.58
11.50	-	-	-	23.54	25.0	2.19	25.72
12.50	-	-	-	23.72	25.0	2.19	25.91
13.50	-	-	-	23.94	25.0	2.19	26.12
14.50	-	-	-	24.17	25.0	2.19	26.36
15.50	-	-	-	27.30	25.0	2.19	29.49
16.50	-	-	-	27.89	20.2	1.80	29.69
17.50	-	-	-	28.47	15.4	1.41	29.87
18.50	-	-	-	29.05	10.6	0.99	30.04
19.50	-	-	-	29.63	5.8	0.55	30.18
20.50	-	-	-	30.20	1.0	0.10	30.30
21.50	-	-	-	29.30	1.0	0.10	29.40
22.50	-	-	-	28.45	1.0	0.10	28.54
23.50	-	-	-	27.65	1.0	0.10	27.74
24.50	-	-	-	26.89	1.0	0.10	26.99
25.50	-	-	-	26.17	1.0	0.10	26.27
26.50	-	-	-	23.70	4.8	0.46	24.16
27.50	-	-	-	21.32	8.6	0.81	22.13
28.50	-	-	-	20.03	12.4	1.15	21.17
29.50	-	-	-	17.69	16.2	1.47	19.17
30.50	-	-	-	15.44	20.0	1.79	17.22
31.50	-	-	-	15.21	20.0	1.79	16.99

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine*

Depth ft	CSRfs w/fs	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsv in.	S in.

Settlement of Saturated Sands=0.000 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Settlement of Dry Sands:

Depth ft	sigma' tsf	sigC' S tsf	(N1)60s	CSRfs w/fs	Gmax tsf	g*Ge/Gm	g_eff	ec7.5 %	Cec	ec %	dsz in.	dsv in.
31.45	1.90	1.24	17.00	0.65	1278.4	9.7E-4	1.0000	1.2157	1.12	1.3593	1.6E-2	0.016
0.016												
30.50	1.85	1.20	17.22	0.66	1265.6	9.6E-4	1.0000	1.1957	1.12	1.3368	1.6E-2	0.307
0.324												
29.50	1.79	1.17	19.17	0.66	1291.3	9.2E-4	1.0000	1.0407	1.12	1.1636	1.4E-2	0.298
0.622												
28.50	1.74	1.13	21.17	0.66	1313.6	8.8E-4	1.0000	0.9144	1.12	1.0224	1.2E-2	0.261
0.883												
27.50	1.68	1.09	22.13	0.66	1311.2	8.5E-4	1.0000	0.8634	1.12	0.9653	1.2E-2	0.236
1.119												
26.50	1.62	1.06	24.16	0.67	1327.2	8.2E-4	1.0000	0.7697	1.12	0.8605	1.0E-2	0.218
1.337												
25.50	1.57	1.02	26.27	0.67	1340.8	7.8E-4	1.0000	0.6881	1.12	0.7694	9.2E-3	0.195
1.532												
24.50	1.51	0.98	26.99	0.67	1328.2	7.6E-4	1.0000	0.6632	1.12			

0.7415	8.9E-3	0.181	1.713							
	23.50	1.45	0.95	27.74	0.67	1315.1	7.4E-4	1.0000	0.6380	1.12
0.7134	8.6E-3	0.174	1.887							
	22.50	1.40	0.91	28.54	0.67	1301.2	7.2E-4	1.0000	0.6126	1.12
0.6850	8.2E-3	0.168	2.055							
	21.50	1.34	0.87	29.40	0.67	1286.6	7.0E-4	1.0000	0.5868	1.12
0.6561	7.9E-3	0.161	2.216							
	20.50	1.28	0.83	30.30	0.68	1271.3	6.8E-4	0.8788	0.4925	1.12
0.5507	6.6E-3	0.147	2.362							
	19.50	1.22	0.80	30.18	0.68	1240.4	6.7E-4	0.7854	0.4430	1.12
0.4952	5.9E-3	0.125	2.487							
	18.50	1.16	0.76	30.04	0.68	1208.2	6.5E-4	0.7004	0.3978	1.12
0.4448	5.3E-3	0.112	2.600							
	17.50	1.10	0.72	29.87	0.68	1174.7	6.4E-4	1.0000	0.5728	1.12
0.6404	7.7E-3	0.146	2.746							
	16.50	1.04	0.68	29.69	0.68	1139.7	6.3E-4	1.0000	0.5781	1.12
0.6463	7.8E-3	0.154	2.900							
	15.50	0.98	0.64	29.49	0.68	1103.3	6.1E-4	1.0000	0.5840	1.12
0.6530	7.8E-3	0.156	3.056							
	14.50	0.92	0.60	26.36	0.69	1028.9	6.1E-4	1.0000	0.6849	1.12
0.7658	9.2E-3	0.165	3.222							
	13.50	0.86	0.56	26.12	0.69	990.5	6.0E-4	1.0000	0.6934	1.12
0.7753	9.3E-3	0.185	3.407							
	12.50	0.80	0.52	25.91	0.69	950.8	5.8E-4	1.0000	0.7012	1.12
0.7839	9.4E-3	0.187	3.594							
	11.50	0.73	0.48	25.72	0.69	909.9	5.6E-4	1.0000	0.7079	1.12
0.7915	9.5E-3	0.189	3.783							
	10.50	0.67	0.43	25.58	0.69	867.5	5.3E-4	1.0000	0.7132	1.12
0.7974	9.6E-3	0.191	3.974							
	9.50	0.60	0.39	27.34	0.69	843.2	5.0E-4	0.9980	0.6498	1.12
0.7266	8.7E-3	0.183	4.156							
	8.50	0.54	0.35	29.37	0.70	816.5	4.6E-4	0.6082	0.3573	1.12
0.3995	4.8E-3	0.129	4.286							
	7.50	0.48	0.31	28.27	0.70	757.1	4.4E-4	1.0000	0.6213	1.12
0.6946	8.3E-3	0.169	4.454							

Settlement of Dry Sands=4.454 in.
dsz is per each segment: dz=0.05 ft
dsv is per each print interval: dv=1 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Dry Sands=4.454 in.
Differential Settlement=2.227 to 2.940 in.

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT)
fc	Friction from CPT testing
Gamma	Total unit weight of soil
Gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [tsf]
sigma'	Effective vertical stress [tsf]
sigC'	Effective confining pressure [tsf]

rd	Stress reduction coefficient
CSR	Cyclic stress ratio induced by earthquake
fs	User request factor of safety, apply to CSR
w/fs	With user request factor of safety inside
CSRfs	CSR with User request factor of safety
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksigma	Overburden stress correction factor for CRR7.5
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
MSF	Magnitude scaling factor for CRR (M=7.5)
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
F.S.	Factor of Safety against liquefaction F.S.=CRRm/CSRfs
Cebs	Energy Ratio, Borehole Dia., and Sample Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after seattlement fines corrections
ec	Volumetric strain for saturated sands
ds	Settlement in each Segment dz
dz	Segment for calculation, dz=0.050 ft
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for dry sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

Department of Toxic Substances Control

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Gavin Newsom
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August 29, 2019

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APPROVAL OF PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT, PROPOSED MORENO VALLEY ELEMENTARY SCHOOL,13636 NASON STREET, MORENO VALLEY (SITE CODE: 404953)

Dear Mr. Alzubaidi:

The Department of Toxic Substances Control (DTSC) reviewed the Preliminary Environmental Assessment Report (PEA) (PlaceWorks, April 24, 2019) for the Proposed Moreno Valley Elementary School (Site), located at 13636 Nason Street, Moreno Valley. The PEA was revised in response to DTSC comments forwarded in a letter dated April 4, 2019. The PEA presents investigation results and conclusions based on a health risk screening evaluation for the Site.

In addition, Moreno Valley Unified School District (MVUSD) notified DTSC on June 7, 2019 that it has complied with all public review and comment requirements for the PEA Report pursuant to Option A (Ed. Code § 17213.1, subd. (a)(6)(A)). The District made the PEA Report available for public review and comment from April 23, 2019 through May 25, 2019 and a public hearing was held on May 16, 2019. No public comments were received regarding the PEA Report.

According to the PEA, the Site is comprised of an 8.97-acre parcel, depicted on the figure enclosed herein, and was used as a citrus orchard from at least 1938 to 2004. A 500-gallon diesel above ground storage tank and a gasoline powered windmill were removed from the Site on July 11, 2017 and in early 2018, respectively

To evaluate the impact from residual agricultural chemicals and the above ground storage tank, the Site was investigated for arsenic, lead, organochlorine pesticides (OCPs) and petroleum hydrocarbons. Lead and dieldrin were detected above screening levels. Additional investigation was conducted to define the extent of contamination and identified near surface soil impacted with hazardous constituents in small isolated areas. The human health risk screening evaluation performed to evaluate the risk posed by detected lead and OCPs indicate that these detections are below the level of concern for protection of public health and the Site is adequate for unrestricted land use.

The PEA concludes that further environmental investigation of the Site is not necessary. Based on review of the PEA Report, neither a release of hazardous material nor the presence of a naturally occurring hazardous material which would pose a threat to public health or the environment under unrestricted land use, was indicated at the Site. Therefore, DTSC concurs with the conclusion of the PEA that further environmental investigation of the Site is not required and hereby approves the PEA

Pursuant to Education Code section 17213.2, subdivision (e), if a previously unidentified release or threatened release of a hazardous material or the presence of a naturally occurring hazardous material is discovered anytime during construction at the Site, the district shall cease all construction activities at the Site and notify DTSC. Additional assessment, investigation or cleanup may be required.

If you have any questions regarding the project, please contact Ms. Chia Rin Yen, Project Manager, at (714) 484-5392 or via e-mail at ChiaRin.Yen@dtsc.ca.gov.

Sincerely,

Javier Hinojosa, Chief
Brownfields Restoration and School Evaluation Branch
Site Mitigation and Restoration Program

mv/cy/jh

cc: See next page

cc: (via e-mail)

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Staff Toxicologist
DTSC / Human and Ecological Risk Office (HERO)
Cy.Jeng@dtsc.ca.gov

SM&RP Schools Team Reading File – DTSC Cypress

Figure 3 - Aerial Photograph
1. Introduction



Project Boundary

0 200
Scale (Feet)

Source: ESRI, 2018

Appendix E Preliminary Environmental Assessment Report

Appendices

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April 2019 | Preliminary Environmental Assessment Report

Proposed Moreno Valley Elementary School-Nason Street

for Moreno Valley Unified School District

Prepared for:

Moreno Valley Unified School District
Contact: Samer Alzubaidi
Director of Facilities
Moreno Valley Unified School District
23301 Dracaea Avenue
Moreno Valley, CA 92553

Project Number:
MORE-33.0

Prepared by:

PlaceWorks
Denise Clendening, Ph.D., Associate Principal
2850 Inland Empire Blvd, Suite B
Ontario, California 91764
909.989.4449
info@placeworks.com
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PLACEWORKS

PLACEWORKS

April 24, 2019

Ms. Chia Rin Yen
Project Manager
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

Subject: Final Preliminary Environmental Assessment Proposed Moreno Valley Elementary School – Nason Street

Dear Ms. Rin Yen:

Enclosed please find the revised final Preliminary Environmental Assessment (PEA) for the Proposed Moreno Valley Elementary School – Nason Street located in Moreno Valley, California. PlaceWorks is submitting the revised PEA to the DTSC on behalf of Moreno Valley Unified School District as part of the ongoing assessment of the proposed school site.

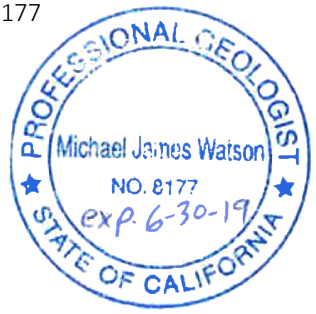
If you have any questions or comments concerning the PEA, please contact Dr. Denise Clendening at 909.989.4449.

Sincerely,

PLACEWORKS

Denise Clendening, Ph.D.
Associate Principal
Project Manager

Michael Watson, PG 8177
Project Geologist



Enclosures

c: Moreno Valley Unified School District, Samer Alzubaidi

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Executive Summary

This Preliminary Environmental Assessment (PEA) Report for the proposed development of a new elementary school in the City of Moreno Valley, Riverside County, California (site), was prepared by PlaceWorks on behalf of Moreno Valley Unified School District (District) pursuant to the California Education Code which requires that all new school sites or existing school sites with new construction obtain a "No Further Action" (NFA) determination from the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) prior to proceeding with acquisition and/or construction of a school. Moreno Valley Unified School District proposes to acquire the 8.97-acre parcel to construct a new elementary school on the project site. The PEA was originally submitted to the DTSC in August 2018 with comments received from the DTSC dated September 18, 2018 requesting step-out samples. Step-out samples were collected on March 29, 2019 in the areas requested by the DTSC.

The proposed school site is comprised of land that is primarily agricultural with a single-family residence, garage, and barn located at 13636 Nason Street, Moreno Valley, California (Figures 1 and 2). The proposed school site is comprised of 8.97 acres on Accessor's Parcel Number [APN] 488-190-034. Approximately 0.72-acres of the northwest corner are occupied by a residential dwelling and barn and 8.25-acres are vacant undeveloped former agriculture land that was used as an orchard. Figure 3 is an aerial photograph showing current site conditions.

The site is bounded by Nason Street to the west and Bay Avenue to the south. The Lord of Life Lutheran Church is immediately north of the site and the Moreno Christian Assembly is south across Bay Avenue. Residential neighborhoods are located to the north of the church and across Cottonwood Avenue. To the west and east are vacant fields followed by residential neighborhoods. To the south across Bay Avenue are residences and a church. The site is approximately 1.11-miles south of State Route-60 (Moreno Valley Freeway).

The District has decided to complete a PEA for the following reason:

- The possibility of residual pesticides present in the soil due to historical agricultural use of the site from at least 1938 to about 2004.

- The possibility of residual lead from lead-based paint and termiticide usage on the structures that have been on site since at least 1901.

Based on information developed during the PEA using the DTSC's PEA Guidance Manual, the DTSC will then make an informed decision regarding potential risks posed by the site.

The PEA field sampling program implemented for the investigation in 2018 is summarized below:

- Soil sampling activities were conducted at the site on July 10, 2018 for the PEA.

Executive Summary

- Sixty-seven (67) discrete soil samples plus fifteen (15) duplicate soil samples were collected.
- Seven (7) composite soil samples plus two (2) composite duplicate soil samples were collected from 0 to 0.5 feet below ground surface (bgs) and were analyzed for organochlorine pesticides (OCPs) by EPA Method 8081A to assess for potential residual OCPs from historic agricultural operations. Based on the composite sample results, 11 discrete soil samples were analyzed for OCPs.
- Two (2) composite soil samples collected from 2.5 to 3.0' bgs near wood structures were analyzed for OCPs by EPA Method 8081A.
- Five (5) soil samples plus one duplicate from 0 to 0.5 feet bgs were analyzed for arsenic by EPA Method 6010B.
- Thirteen (13) soil samples plus three duplicates from 0 to 0.5 feet bgs were analyzed for lead by EPA Method 6010B. Based on the surface soil sample results two soil samples from 2.5 to 3.0' bgs were subsequently analyzed.
- Nine (9) soil samples plus one duplicate soil sample were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 B to assess the aboveground storage tank (AST) and former windmill.

The results of the field program are summarized below:

- The following six OCPs were detected in some of the composite samples: 4,4'-DDT, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin and endrin aldehyde.
- OCP sample concentrations were screened using both EPA Region 9 Residential Screening Levels (RSLs) and if available DTSC- Modified Residential Screening Levels (SLs). Dieldrin was above the EPA RSL adjusted for the number of samples that comprised the composite in five surface composite samples. The individual soil samples that comprised the composite were analyzed discretely and one sample, B-19, located in the orchard, was slightly above the EPA RSL.
- Chlordane was not elevated above the DTSC SL or EPA RSLs. Discrete samples were analyzed that comprised some of the composites. When the samples were collected in July 2018, the DTSC SL was lower and has been subsequently revised. Chlordane concentrations do not exceed the revised DTSC SL.
- A low concentration of TPH was detected in one soil sample, B-5 collected from 5 feet bgs on the north side of the diesel AST located in the remaining small grove of citrus trees located south of the barn. The total TPH concentration was 57 mg/kg.
- Lead was detected in 14 out of the 15 soil samples and three duplicate soil samples analyzed ranging in concentration from 2.41 mg/kg to 214 mg/kg. Two soil samples collected near the structures (barn and garage) were elevated above DTSC SL of 80 mg/kg. Sample B-29 was collected on the south side

of the garage and had a concentration of 121 mg/kg in the sample collected at 0.5 feet bgs and dropped to below the screening level in the sample collected from the same location at 2.5 feet bgs to 2.89 mg/kg. Sample B-30 was collected on the north side of the barn and had a concentration of 214 mg/kg in the sample collected at 0.5 feet bgs and decreased to below the screening level in the sample collected from the same location at 2.5 feet bgs to a concentration of 2.41 mg/kg.

- Arsenic was not detected above the laboratory reporting limits in the nine soil samples and one duplicate.

In March 2019, thirty-six step-out samples were collected from 18 sample locations. DTSC in September 2018 had requested step-out samples in the following areas:

- Ten step-out samples were collected to delineate the detection of chlordane in the surface soil sample collected on the north side of the residential structure. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the south side of the garage. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the north side of the metal barn. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Six step-out samples were collected to delineate the detection of dieldrin at the screening level in the surface soil collected near the south side of the AST located in the remaining orchard. Soil samples were collected from three locations from 0.5 feet bgs and from 2.5 feet bgs.

The results of the step-out sampling are summarized below:

- Chlordane was below SLs in the samples collected on the north side of the residential structure.

- Six other pesticides were detected in surface soil on the north side of the house at concentrations below SLs: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endrin aldehyde, and heptachlor epoxide.

- One pesticide, 4,4'-DDE was detected below SLs in step-out samples collected to delineate the detection of dieldrin in the surface soil collected near the south side of the former AST. Dieldrin was not detected in the step-out samples in this area.

- Lead was analyzed in ten step-out samples to delineate the area south of the garage and on the north side of the metal barn. Lead concentrations ranged from 1.91 mg/kg to 21.4 mg/kg, below the DTSC SL of 80 mg/kg for lead.

Executive Summary

- A screening level risk assessment was conducted for the pesticides detected at the site using the highest reported concentrations and the 95% upper confidence limit (UCL) calculated with ProUCL. The estimated carcinogenic risk using the maximum detected concentrations was 2.9E-06 and using the 95% UCL the estimated carcinogenic risk was 8.0E-07. The hazard index was below levels of concern. using both the maximum concentrations and the 95% UCL concentrations.

- The 95% UCL concentration for lead using ProUCL was 46 mg/kg, below levels of concern.

Recommendations

The results of the PEA support the following conclusions and recommendations:

Based on the PEA objectives, the environmental quality goals of the District, and the results of the PEA investigation, PlaceWorks has determined that no further assessment is required for the site. Therefore, PlaceWorks recommends that the PEA be finalized. Per California Education Code Section 17213.1, Section 3, PlaceWorks concludes that further assessment of the site is not necessary and is requesting an approval of the PEA.

1. Introduction

This Preliminary Environmental Assessment (PEA) Report for the proposed development of a new elementary school campus in the City of Moreno Valley in Riverside County, California (site) was prepared by PlaceWorks on behalf of Moreno Valley Unified School District (District) pursuant to the California Education Code which requires that all new school sites or existing school sites with new construction obtain a "No Further Action" (NFA) determination from the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) prior to proceeding with acquisition and/or construction of a school. Moreno Valley Unified School District proposes to acquire the 8.97-acre site to construct a new elementary school on the project site. The PEA was originally submitted to the DTSC in August 2018 with comments received from the DTSC dated September 18, 2018 requesting step-out samples. Step-out samples were collected on March 29, 2019 in the areas requested by the DTSC.

The proposed school site is comprised of land that is primarily agricultural with a single-family residence, garage, and barn located at 13636 Nason Street, Moreno Valley, California (Figures 1 and 2). The proposed school site is comprised of 8.97 acres on Accessor's Parcel Number [APN] 488-190-034. Approximately 0.72-acres of the northwest corner are occupied by a residential dwelling and barn and 8.25-acres are vacant undeveloped former agriculture land was used as an orchard. Figure 3 is an aerial photograph showing current site conditions.

The site is approximately 1.11-miles south of State Route-60 (Moreno Valley Freeway). The site is bounded by Nason Street to the west and Bay Avenue to the south. The Lord of Life Lutheran Church is immediately north of the site and the Moreno Christian Assembly is south across Bay Avenue. Residential neighborhoods are located to the north of the church and across Cottonwood Avenue. To the west and east are vacant fields followed by residential neighborhoods. To the south across Bay Avenue are residences and a church.

Based on a review of historical aerial photographs and topographic maps, the project site had been utilized for agricultural purposes (orchard) since at least 1938 to about 2006. The site history also indicates that there has been a residential dwelling on the northwest corner of the site since at least 1901.

This PEA was prepared in accordance with the guidelines of the California Environmental Protection Agency Department of Toxic Substances Control (DTSC), as detailed in the PEA Guidance Manual.

1.1 PEA OBJECTIVES

The District has prepared this PEA pursuant to the California Education Code that requires the completion of a Phase I Environmental Site Assessment (Phase I) or PEA, for all new school sites that will receive state funding prior to proceeding with construction of a school.

The overall objectives of this PEA are to:

- Evaluate historical information for indications of the past use, storage, disposal, or release of hazardous waste/substances at the site;
- Evaluate available information for indications of naturally-occurring hazardous materials at the site.
- Establish through a field sampling and analysis program the nature of hazardous wastes/substances that may be present in soil at the site, their concentration and general extent; and
- Estimate the potential threat to public health and/or the environment posed by hazardous constituents, if any, at the site using a residential land-use scenario.

Based on information developed during the PEA and the conservative human and ecological risk evaluation set forth in the DTSC's Preliminary Endangerment Assessment Guidance Manual, the DTSC will then make an informed decision regarding potential risks posed by the site.

Possible outcomes of the PEA decision include, but are not limited to, the requirement for further investigation through the Supplemental Site Investigation process if the site is found to be significantly impacted by hazardous substances release(s); the need to perform a Removal Action if localized impacts by hazardous substances release(s) are found; implementation of mitigation actions to address any potential risks; and an issuance of a "No Further Action" (NFA) finding if the site is found not to be significantly impacted and risks to human health and the environment are found to be within acceptable levels based on the conservative screening-level risk assessment.

1.2 SCOPE OF WORK

The scope of work implemented to prepare this PEA included:

- Researching available site background information regarding former and current land use;
- Implementing field and laboratory data collection and evaluation to further assess environmental conditions at the site; and
- Preparing this PEA report.

Several information sources were reviewed as part of the background research for development of this PEA report. These sources were reviewed to develop an understanding of current and past land uses and practices that may have involved the handling, use, storage, and/or disposal of hazardous substances or wastes. Information was obtained and used to develop a general site history in an attempt to identify potential sources of chemical impact, if any.

The approach utilized to perform the background research is very similar to that used in completing a Phase I under the American Society for Testing and Materials (ASTM) Practice for Environmental Site Assessments (ESAs): Phase I Assessments Process (ASTM Standard E 1527-13). Specific sources of information reviewed, and activities performed by PlaceWorks in conducting the background research included:

- Site inspections and observations of the site and surrounding area within ¼-mile (site photographs are included in Appendix A);
- Review of available aerial photographs (included in Appendix B);
- Review of current U.S. Geological Survey (USGS) 7.5-minute topographic maps (included in Appendix B);
- Evaluation of environmental database list searches (included in Appendix C);
- Review of agency files at federal, state and local regulatory agencies and offices for the site;
- Review of agency files for listed facilities within ¼-mile of the site that were identified as having a potential to have impacted the site (included in Appendix C);
- Interviews with persons knowledgeable of site history and operations; and
- Collection and review of available applicable information from the District's files.

The scope for the field and laboratory investigation is discussed in Section 6. The field sampling program implemented for the investigation is summarized below:

- Soil sampling activities were conducted at the site on July 10, 2018 for the PEA.
- Sixty-seven (67) discrete soil samples plus fifteen (15) duplicate soil samples were collected.
- Seven (7) composite soil samples plus two (2) composite duplicate soil samples were collected from 0 to 0.5 feet below ground surface (bgs) and were analyzed for organochlorine pesticides (OCPs) by EPA Method 8081A to assess for potential residual OCPs from historic agricultural operations. Based on the composite sample results, 11 discrete soil samples were analyzed for OCPs.
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- Nine soil samples plus one duplicate soil sample were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 B to assess the aboveground storage tank (AST) and former windmill.

1. Introduction

The results of the field program are summarized below:

- The following six OCPs were detected in some of the composite samples: 4,4'-DDT, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin and endrin aldehyde.

- OCP sample concentrations were screened using both EPA Region 9 Residential Screening Levels (RSLs) and if available DTSC- Modified Residential Screening Levels (SLs). Dieldrin was above the EPA RSL adjusted for the number of samples that comprised the composite in five surface composite samples. The individual soil samples that comprised the composite were analyzed discretely and one sample, B-19, located in the orchard, was slightly above the EPA RSL.

- Chlordane was not elevated above the DTSC SL or EPA RSLs. Discrete samples were analyzed that comprised some of the composites because the DTSC SL was revised to the EPA RSL in April 2019. When the samples were collected in July 2018, the DTSC SL was lower and has been subsequently revised. Chlordane concentrations do not exceed the revised DTSC SLs. The DTSC SL and the EPA RSL is 1.7 mg/kg for chlordane. The highest chlordane concentration from the July 2018 sampling was 0.68 mg/kg.

- A low concentration of TPH was detected in one soil sample, B-5 collected from 5 feet bgs on the north side of the diesel AST located in the remaining small grove of citrus trees located south of the barn. The total TPH concentration was 57 mg/kg.

- Lead was detected in 14 out of the 15 soil samples and three duplicate soil samples analyzed ranging in concentration from 2.41 mg/kg to 214 mg/kg. Two soil samples collected near the structures (barn and garage) were elevated above DTSC SL of 80 mg/kg. Sample B-29 was collected on the south side of the garage and had a concentration of 121 mg/kg in the sample collected at 0.5 feet bgs and dropped to below the screening level in the sample collected from the same location at 2.5 feet bgs to 2.89 mg/kg. Sample B-30 was collected on the north side of the barn and had a concentration of 214 mg/kg in the sample collected at 0.5 feet bgs and decreased to below the screening level in the sample collected from the same location at 2.5 feet bgs to a concentration of 2.41 mg/kg.

- Arsenic was not detected above the laboratory reporting limits in the nine soil samples and one duplicate.

DTSC requested step-out samples in their review of the PEA. In March 2019, thirty-six step-out samples were collected from 18 sample locations. DTSC in September 2018 had requested step-out samples in the following areas:

- Ten step-out samples were collected to delineate the detection of chlordane in the surface soil sample collected on the north side of the residential structure. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs. Subsequently, the DTSC SL for chlordane was revised and the concentrations at the site do not exceed SLs.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the south side of the garage. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the north side of the metal barn. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Six step-out samples were collected to delineate the detection of dieldrin at the screening level in the surface soil collected near the south side of the AST located in the remaining orchard. Soil samples were collected from three locations from 0.5 feet bgs and from 2.5 feet bgs.

The results of the step-out sampling are summarized below:

- Chlordane was below SLs in the samples collected on the north side of the residential structure.

- Six other pesticides were detected in surface soil on the north side of the house at concentrations below SLs: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endrin aldehyde, and heptachlor epoxide.

- One pesticide, 4,4'-DDE was detected below SLs in step-out samples collected to delineate the detection of dieldrin in the surface soil collected near the south side of the former AST. Dieldrin was not detected in the step-out samples in this area.

- Lead was analyzed in ten step-out samples to delineate the area south of the garage and on the north side of the metal barn. Lead concentrations ranged from 1.91 mg/kg to 21.4 mg/kg, below the DTSC SL of 80 mg/kg for lead.

1.3 PEA REPORT FORMAT

This PEA Report is organized in general accordance with the format presented in Chapter 3 of the DTSC's PEA Guidance Manual. This PEA Report contains the following sections:

- Section 1 presents an Introduction and Summary of PEA Objectives and PEA Report Format;

- Section 2 presents a Site Description of the proposed site;

- Section 3 includes Site History and Background Information;

- Section 4 defines the Apparent Problem;

- Section 5 contains a description of the Site Environmental Setting;

- Section 6 presents a discussion of Sampling Activities and Results;

- Section 7 includes the Human Health Screening Evaluation Statement;
- Section 8 presents the Ecological Screening Evaluation Statement;
- Section 9 includes a summary of Quality Assurance Project Plan (QAPP) measures;
- Section 10 describes Health and Safety Plan (HASP) implementation;
- Section 11 summarizes variances from the proposed sampling plan;
- Section 12 presents a discussion of Applicable or Relevant Laws and Regulation Pertaining to School Sites;
- Section 13 presents Conclusions and Recommendations of the PEA; and
- Section 14 lists References cited in the document.

The appendices to this PEA Report include:

Appendix A – Site Photographs;

Appendix B – Research Documentation;

Appendix C – Environmental Database Search Report;

Appendix D – Health and Safety Plan;

Appendix E – Laboratory Reports;

Appendix F – QAPP

1.4 PUBLIC PARTICIPATION

Per Assembly Bill (AB) 972, prior to the commencement of the proposed PEA sampling, the public that was within the line of site was notified of the planned investigation activities. The field work notice followed a format developed by DTSC in accordance with Education Code section 17210.1, subdivision (b). In addition, a separate work notice will be posted around the perimeter of the Site. The District will make the PEA available for public review and comment when the PEA is submitted to the DTSC for review. A public hearing will be conducted for the PEA (Option A under AB 972) that will be advertised in the local newspaper. Upon completion of the 30-day public review and public hearing, a letter will be sent to the DTSC from Moreno Valley Unified School District outlining the public notification process including the date of the public hearing and the dates of the 30-day public review.

2. Site Description

This section describes the location and ownership of the site as well as other pertinent details required by DTSC regarding the specifics of the site description. The 8.97-acre site has been identified by the District as the proposed new elementary school site. The project site is located within Section 10 of Township 3 South, Range 3 West of the San Bernardino Base Line and Meridian. Currently the site consists of a residence, garage, and a barn in the northwest corner of the site and a small grove of approximately 20 trees located to the south of the barn. A 500-gallon diesel aboveground storage tank (AST) had been located in the small remaining grove that was removed in 2018. A windmill had been located in the middle of the site that was also removed in 2018 by the landowner.

2.1 DESCRIPTION AND LOCATION

2.1.1 Site Name

The site has been identified by the District as the proposed new elementary school site.

2.1.2 Site Address

The site is located 13636 Nason Street, Moreno Valley, Riverside County, California (Figures 1 and 2). Figure 3 shows the existing site conditions.

2.1.3 Designated Contact Person

Samer Alzubaidi, Director of Facilities, is the Contact Person designated by the District.

2.1.4 Mailing Address

The mailing address for the project designated by the District is:

Moreno Valley Unified School District
23301 Dracaea Avenue
Moreno Valley, CA 92553

2.1.5 Other Site Names

No other site names were identified for the proposed school site.

2.1.6 U.S. Environmental Protection Agency (USEPA) Identification Number

The project site does not have a USEPA identification number.

2.1.7 EnviroStor Database Number

DTSC has assigned the EnviroStor database number 60002704 and 404953 as the site code.

2.1.8 Assessor's Parcel Number(s)

The proposed school site is located within Assessor Parcel Number [APNs] 488-190-034.

2.1.9 Site Maps and Photographs

A vicinity map depicting the site and surrounding area is included as Figures 1 and 2, respectively. Project boundaries are shown on Figure 3. Site photographs are included in Appendix A.

3. Site History and Background Information

3.1 CURRENT AND HISTORICAL LAND USES

3.1.1 Facility Ownership/Operators

The site is currently owned by Mr. David Lantz. Mr. Lantz has been the owner of the parcel since 1997 after the death of his father. The parcel has been in the Lantz family since 1896 when it was purchased by Mr. Lantz's grandfather and has been used solely as a citrus orchard by the family.

3.1.2 Business Type

The site has been utilized for agricultural purposes from at least 1938 to 2004. Structures have been associated with this site since at least 1901. There is a residential dwelling located on the northwest corner of the site, a garage and a barn. The house is currently used as a rental property.

3.1.3 Years of Operation

Based on a review of historical aerial photographs, the site was used for agricultural purposes from at least 1938 to approximately 2004.

3.1.4 Business/Manufacturing Activities

Based on a review of historical documents, no manufacturing activities have occurred on the site. The site has a history of being used as an orchard from at least 1938 to about 2004.

3.2 SURROUNDING PROPERTY LAND USES

The surrounding properties are primarily rural residential or open space. The adjoining land uses are as follows:

North: The Lord of Life Lutheran Church is located immediately north of the site followed by residences. Valley View High School and Mountain View Middle School are located to the north northwest of the site.

South: Immediately south, across Bay Avenue, is a mix of residential and the Moreno Christian Assembly. Further south are more residential properties, fields, and the Riverside University Health System Medical Center.

West: Vacant land followed by residential.

East: Vacant land followed by residential.

Section 17213 of the California Education Code and Section 21151.8 of the California Public Resources Code prohibit construction of a school upon a current or former hazardous waste disposal site or solid waste disposal site. Based on information reviewed for preparation of this PEA Report, the proposed development site of a new school campus for Moreno Valley Unified School District is not located on a current or former disposal site.

3.3 PAST USAGE OF THE SITE

Past usage of the site was assessed through a review of aerial photographs and topographic maps. Copies of the aerial photographs and topographic maps are included in Appendix B. Based on a review of aerial photographs and historical topographic maps the site has been used as a citrus orchard and single-family residential dwelling since at least 1901. The site has been owned by the same family since 1896.

3.3.1 Aerial Photographs

Aerial photographs, obtained from EDR, dated 1938, 1949, 1953, 1967, 1978, 1985, 1989, 1997, 2002, 2006, 2009, 2012, and 2016 were reviewed for the site.

- 1938 – The site appears to be developed with an orchard on the western portion of the property. Structures are apparent on the northwest corner of the site where they are currently located. The eastern portion of the site appears to be vacant field. The surrounding area appears to be a mix of orchards, agriculture, rural residential property, and vacant land.

- 1949 – The site and surrounding area appear relatively unchanged in comparison to the 1938 aerial photograph. The vacant field on the eastern portion has dirt trails running from the northwest corner to the southeast corner.

- 1953 – The site and surrounding area appear relatively unchanged in comparison to the 1949 aerial photograph.

- 1967 – The site appears relatively unchanged in comparison to the 1953 aerial photograph. The surrounding area appears to have more residential structures and to the northeast and to the northwest of the site there appears to be a possible poultry farm.

- 1978 – The orchard now covers both the western and eastern halves of the site with the residential structures still present on the northwest corner. The possible poultry farm to the northwest is no longer present. The orchards that had been south of the site are gone and there are only a few orchards left to the north of the project site.

- 1985 – The site appears relatively unchanged in comparison to the 1978 aerial photograph. The surrounding area appears to have more residential development and the poultry farm located to the northeast is no longer present.

- 1989 – The site and surrounding area appear relatively unchanged in comparison to the 1985 aerial photograph.
- 1997 – The site appears relatively unchanged in comparison to the 1989 aerial photograph. The surrounding area appears more developed with a school located to the northwest of the site. Residential structures appear to the north, east, south, and sporadically to the west.
- 2002 – The site and surrounding area appear relatively unchanged in comparison to the 1997 aerial photograph.
- 2006 – The orchard is no longer spread across the property and there appears to be only about 40 trees located to the south of the residential structures. There are now residential communities to the northwest and west of the site.
- 2009 – The site appears relatively unchanged in comparison to the 2006 aerial photograph. There appears to be another residential community to the north of the site, directly east of the school.
- 2012 – The site and surrounding area appear relatively unchanged in comparison to the 2009 aerial photograph.
- 2016 – The site and surrounding area appear relatively unchanged in comparison to the 2012 aerial photograph.

3.3.2 Historical Topographic Maps

Historical topographic maps, obtained from EDR dated 1901, 1942, 1943, 1953, 1967, 1973, 1980, and 2012 were reviewed for the site.

- 1901- One structure is shown on the northwest corner of the site. Streets are depicted but not labeled. In general, there is sporadic and spread out development in the surrounding area.
- 1942 – There are two structures depicted in the northwest corner of the site. The site is shown to have an orchard marked on the western side on the property. Alessandro Boulevard and Cottonwood Avenue are the only streets that are labeled.
- 1943 – The site and surrounding area appears relatively unchanged in comparison to the 1942 topographic map.
- 1953 – The site and surrounding area appears relatively unchanged in comparison to the 1943 topographic map.
- 1967 – The site and surrounding area appears relatively unchanged in comparison to the 1953 topographic map.

- 1973 – The site and surrounding area appears relatively unchanged in comparison to the 1967 topographic map.
- 1980 — The orchard is no longer marked on the site. The surrounding area appears relatively unchanged in comparison to the 1973 topographic map.
- 2012 – No structures are depicted in current topographic maps, only streets are labeled, and the topography shown.

3.4 PAST USAGE OF ADJOINING PROPERTIES

Past usage of the adjoining properties was assessed through a review of aerial photographs and historical topographic maps. Copies of historical references reviewed are included in Appendix B.

Based on a review of aerial photographs and historical topographic maps, adjoining properties were utilized for agricultural purposes from at least 1938 to the present. Rural residential dwellings have been located on adjoining land to the east and west since at least 1938.

3.5 HAZARDOUS SUBSTANCE/WASTE MANAGEMENT INFORMATION

3.5.1 Records Review

3.5.1.1 SITE OWNER/OPERATOR RECORDS

Site owner/operator records were not reviewed.

3.5.1.2 OIL AND GAS MAP REVIEW

Based on a review of the Division of Oil, Gas, and Geothermal Resources (DOGGR) Well Finder website, there are no oil or gas wells within a mile of the site. The nearest well is approximately 3.04-miles to the northeast of the site. The well is identified as a plugged and abandoned well that was drilled in May 1955 and in May 1956 was transferred from the Perris Oil Co. to property owner Martha R. Kelley to be used as water well. The well is identified with the API 06500122.

3.5.2 Site Inspection Results

A site visit to observe site conditions was conducted by PlaceWorks on July 10, 2018. No weather-related conditions or other conditions that would limit our ability to observe the site occurred during our site reconnaissance.

Summarized below are observations relative to specific physical features identified in the PEA Guidance Manual and site photographs are included as Appendix A.

Physical Feature	*Observations*
Site boundaries:	The project site consists of approximately 8.97 acres of former agricultural land and a single-family residence and barn located at 13636 Nason Street border by Nason Street on the west followed by vacant land, a church followed by residential on the north, vacant land on the east and Bay Street on the south followed by residential and another church.
Locations and boundaries of all onsite operations (present and past):	The project site was formerly used as an orchard with a single-family residence and barn located on the northwest corner of the site since the early 1900s.
Foundations of former structures:	None noted by PlaceWorks. But there are currently structures on site.
Storage tanks and storage areas:	A 500-gallon diesel AST was located south of the barn that was removed on July 11, 2017 by the owner. A windmill that was gasoline powered was located in the center of the field and was removed in early 2018.
Odors:	None noted by PlaceWorks.
Pools of liquid:	None noted by PlaceWorks.
Electrical or hydraulic equipment known or likely to contain PCBs:	None noted by PlaceWorks.
Unidentified substance containers (including empty drum storage):	None noted by PlaceWorks.
Stained soil and pavement, corrosion, and degradation of floors and walls:	None noted by PlaceWorks. Soil near the former diesel AST and windmill showed no signs of staining or odor.
Drains and Sumps:	None noted by PlaceWorks.
Pits, ponds, and lagoons:	None noted by PlaceWorks.
Surface drainage pathways:	None noted by PlaceWorks.
Stressed vegetation (from other than insufficient water):	None noted by PlaceWorks.
Solid waste and waste water:	None noted by PlaceWorks.
Wells (including dry wells, irrigation wells, injection wells):	One electrical powered irrigation well located near the northwest corner of the site.
Septic systems:	None noted by PlaceWorks. The house is hooked up to the city sewer.
Overhead electrical lines:	Yes, along the property boundary on the north side of the site. No transformers noted.
High-pressure gas or fuel transmission lines:	No high-pressure gas pipelines were identified as being located on the site.
Railroad tracks:	No railroad tracks were identified within 1,500 feet of the site.

3.5.3 Interviews

An interview with the land owner, Mr. David Lantz, was conducted on July 10, 2018. Mr. Lantz indicated the site had been owned by his family since 1892 and he had inherited the land after his father past away in 1997. Oranges and grapefruits were some of the citrus trees that were planted over the years. A windmill had been located in the center of the field that was used to circulate cold air to deter freezing and was powered by gasoline. Mr. Lantz indicated that smudge pots were not used on the site. A 500-gallon diesel AST was installed in 1973 for farm equipment that was removed on July 11, 2018. No USTs were ever located on the site according to Mr. Lantz.

3.5.4 Prior Assessments/Remediation

No prior assessments or remediation exist for this site and were not reviewed by PlaceWorks.

3.6 REGULATORY STATUS

PlaceWorks utilized the electronic database service EDR to complete an environmental records review for the site. The database search was used to identify properties that may be listed in the referenced Agency records, located within the American Society for Testing and Materials (ASTM)-specified search radii indicated below:

Database	Approximate Search Distance	Subject Site Listed?	Number of Sites within Search Area
Federal NPL Sites	1 mile	No	0
Federal Delisted NPL Sites	0.5 mile	No	0
CERCLIS Sites	0.5 mile	No	0
CERCLIS-NFRAP Sites	0.5 mile	No	0
Federal ERNS	Site only	No	0
RCRA non-CORRACTS TSD Facilities	0.5 mile	No	0
RCRA CORRACTS Facilities	1 mile	No	0
RCRA Generators	Site and Adjoining	No	0
Federal Institutional/Engineering Control Registry	0.5 mile	No	0
State and Tribal Equivalent NPL Sites	1 mile	No	0
State and Tribal Equivalent CERCLIS Sites	1 mile	No	2
State and Tribal Registered Storage Tanks	Site and Adjoining	No	0
State and Tribal Landfills and Solid Waste Disposal Sites	0.5 mile	No	0
State and Tribal Leaking Storage Tanks	0.5 mile	No	0
State and Tribal Institutional Controls/Engineering Control	Site only	No	0
State and Tribal Voluntary Cleanup Sites	0.5 mile	No	0
State and Tribal Brownfield Sites	0.5 mile	No	0
Orphan Site List	Site and Adjoining	No	0
HAZNET	Site only	No	0

A review of selected regulatory agency databases for documented environmental concerns on the site, or in close proximity to the site, was conducted by EDR. A copy of the radius report, dated July 13, 2018 is included in Appendix C. The proposed school site was not listed on any of the environmental databases searched. The only sites identified within the search radius were two school sites that had been investigated under the oversight of the Department of Toxic Substances Control.

3.6.1 NPL Sites

The National Priorities List (NPL) is a list of contaminated sites that are considered the highest priority for clean-up by the EPA.

- The project site is not listed on the NPL database.

- No NPL facilities were identified within one mile of the project site.

3.6.2 CERCLIS Sites

The Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) list identifies sites which are suspected to have contamination and require additional investigation to assess if they should be considered for inclusion on the NPL.

- The project site is not listed on the CERCLIS database.
- No CERCLIS sites were identified within a half mile of the project site.

3.6.3 CERCLIS-NFRAP Sites

CERCLIS-NFRAP status indicates that a site was once on the CERCLIS List but has No Further Response Actions Planned (NFRAP). Sites on the CERCLIS-NFRAP List were removed from the CERCLIS List in February 1995 because, after an initial investigation was performed, no contamination was found, contamination was removed quickly, or the contamination was not significant enough to warrant NPL status.

- The project site is not listed on the CERCLIS-NFRAP database.
- No CERCLIS-NFRAP sites were identified within a half mile of the project site.

3.6.4 Federal ERNS List

The Federal Emergency Response Notification System (ERNS) list tracks information on reported releases of oil and hazardous materials.

- The project site is not listed on the ERNS database.

3.6.5 RCRA CORRACTS Facilities

The Resource and Conservation Recovery Act (RCRA) CORRACTS Facilities list catalogues facilities that treat, store, or dispose of hazardous waste and have been associated with corrective action activity.

- The project site is not listed on the RCRA CORRACTS Facilities list.
- The database search did not identify any facilities on the RCRA CORRACTS Facilities list within one mile of the project site.

3.6.6 RCRA non-CORRACTS TSD Facilities

The RCRA non-CORRACTS TSD Facilities list tracks facilities which treat, store, or dispose of hazardous waste and are not associated with corrective action activity.

- The project site is not listed on the RCRA non-CORRACTS TSD Facilities list.
- The database search did not identify any RCRA non-CORRACTS TSD facilities within a half mile radius of the project site.

3.6.7 RCRA Generators

The RCRA Generators list is maintained by the USEPA to track facilities that generate hazardous waste.

- The project site is not listed on the RCRA Generators database.
- The database search did not identify any RCRA Generators within a half mile radius of the project site.

3.6.8 State-and-tribal equivalent CERCLIS List

The State-and-tribal equivalent CERLIS List database identifies hazardous waste sites selected for remedial action and underground storage tank (UST) properties having a reportable release and is maintained by the DTSC.

- The project site is not listed on the State-and-tribal equivalent CERLIS List.
- The database search identified two facilities on the State-and-tribal equivalent CERLIS List within a half mile radius of the project site that were both school sites.
    - Mountain View Middle School Expansion located at 13130 Morrison Avenue, approximately 0.696-mile to the northwest of the subject site, is listed because in 2008 the Moreno Valley District investigated the existing school, which was built in 1980, for arsenic and organochloride pesticides from past historical agriculture operations. The DTSC concurred with the conclusion of the Preliminary Environmental Assessment that no further action was required as of June 16, 2008.
    - La Jolla Elementary School located at Oliver Street and Cactus Avenue, approximately 0.780-mile of the subject site, is listed because the site was investigated in 2003 as a possible school site and due to past historical agriculture operations had a Preliminary Environmental Assessment and a Phase I Environmental Site Assessment done. The DTSC issued a no further action determination on September 8, 2003.

3.6.9 Registered Underground Storage Tanks (USTs)

The State Water Resources Control Board's Hazardous Substance Storage Container Database maintains a list of USTs regulated by the RCRA.

- The project site is not listed on the registered UST database.

- The database search did not identify any registered UST facility and one historical UST within a quarter mile radius of the project site.

3.6.10 State Landfills and Solid Waste Disposal Sites

The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills. The data comes from the Integrated Waste Management Board's Solid Waste Information System database.

- The project site is not listed on the Solid Waste Facilities/Landfill Sites database.
- The database search did not identify any Solid Waste Facilities/Landfill Sites within a half mile of the project site.

3.6.11 State Leaking Underground Storage Tanks (LUSTs)

The State Water Resources Control Board's Leaking Underground Storage Tank Information System contains an inventory of LUST Incident Reports.

- The project site is not listed on the LUST database.
- The database search did not identify any LUST facility within a half mile radius of the project site.

3.6.12 Local Lists of Hazardous Waste Contaminated Sites

A record search was done on the following databases: Clandestine Drug Labs, HIST Cal-Sites Historical CalSites Database, and Toxic Pits Cleanup Act Sites.

- The subject site is not listed on the Local List of Hazardous Waste Contaminated Sites.
- The database search did not identify any nearby sites within the designated search radius.

3.6.13 HAZNET

The California Environmental Protection Agency, Department of Toxic Substances Control maintains a list of facility and manifest data.

- The project site is not listed on the HAZNET database.

The database search did not identify any properties on the HAZNET database within a quarter mile radius of the project site.

3. Site History And Background Information

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4. Apparent Problem

There is no physical or historic evidence of any site activity that might have caused any environmental impact to the site. However, there are potential environmental issues evaluated in this PEA. The PEA identified the following potential issues at the site:

- The possibility of residual pesticides present in the soil due to historical agricultural use of the site from the early 1900s to about 2004.
- The possibility of residual lead from lead-based paint and termiticide usage on the structures that have been on site since at least 1901.

Because the site is for a proposed school, there is a potential for children who will attend the school and adult employees of the school to be exposed to chemicals that may be present in soil. Potential exposure may occur from soil ingestion, dermal exposure to soil, and inhalation of particles. The sampling that was conducted as part of this PEA was directed at addressing these potential chemicals of concern and these potential exposure pathways.

Because of the presence of the above-mentioned concerns, a PEA was initiated for the site.

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4. Apparent Problem

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5. Environmental Setting

This section describes potential exposure pathways and the site geology and hydrogeology.

5.1 FACTORS RELATED TO SOIL EXPOSURE PATHWAYS

5.1.1 Site Topography

Based on a review of the USGS 7½-Minute Topographic Series, Sunnymead, California Quadrangle Maps (USGS 2012), the surface elevation of the subject property is 1,620-feet above sea level. The site appears to be sloping toward the south.

5.1.2 Site Geology and Soil Types

The project site is situated in the central portion of the Moreno Valley, which sits in the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Geomorphic Province is characterized by elongated northwest-trending mountain ranges that are separated by sediment-floor valleys, all which extends 900-miles towards the Los Angeles Basin to Baja California, Mexico (Yerkes *et al*, 1965). Northwest-trending fault zones that dies out, merge with, or are terminated by the steep reverse faults of the southern margin of the San Gabriel-San Bernardino Mountains of the Transverse Ranges Geomorphic Province are the most dominate features of this region.

Based on a review of available in-house literature and the Riverside County ArcGIS website, the site is located approximately 3.12-miles southwest of the Claremont segment of the San Jacinto Fault. No active faults are known to have been mapped within a half mile radius of the property. The United States Department of Agriculture Natural Resources Conservation Services maps the soil at the site as Ramona sandy loam, Hanford coarse sandy loam, and Greenfield sandy loam (USDA 2018). These soils are all classified by moderate infiltration rates and are deep, moderately well drained soils with coarse textures.

Based on a review of the US EPA's EPA Radon Zone website, Riverside County and the EDR GeoCheck is listed as being within Zone 2, which is the second lowest classification of potential radon (EDR 2018). Based on this classification, naturally-occurring radon is not likely to be a potential hazard at the site.

5.1.3 Naturally Occurring Asbestos

Based on a review of A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos (Department of Conservation, Division of Mines and Geology 2000) and Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California (Van Gosen and Clinkenbeard 2011), the site is not located within a ten-mile radius from an area thought to contain naturally occurring asbestos (NOA).

5.1.4 Site Accessibility

The site is accessible off of Nason Street to the west and Bay Avenue to the south.

5.1.5 Proximity to Nearby Receptors

Residential properties are to the north, northwest, to the south, southeast, southwest, west, and east. Valley View High School is located approximately 1,986 feet to the north-northwest of the site. Morrison Park and Moreno Elementary School are approximately 1,506 feet north-northwest of the site. Based on the EDR Detail Map, Monroy Family Child Care is located north of the site, along Cottonwood Avenue and is approximately 677 feet from the project site. Immediately north and south of the site are churches and residential property. Directly to the west and east appears to be open fields, possibly agricultural.

5.2 FACTORS RELATED TO WATER PATHWAYS

The following sections describe factors related to potential water pathways.

5.2.1 Groundwater Pathway and Surface Water Information

Based on the general topography of the site, surface water would generally flow to the south. The groundwater is expected to follow the general topography and flow to the south as well. There are no bodies of water located on the site, but Kitching Drain is located approximately 1.25 miles west of the site. Hydrogeological investigations were not performed on the site as part of this investigation; therefore, it is unknown to what extent localized variations in groundwater presence and flow occur on the site.

No information was found on the irrigation well located on the site near the northwest corner of the property that is powered by electricity. The well was not identified in the EDR databases searched on the United States Geological Services California Water Science Center.

According to FEMA Flood Maps for the area and the EDR Overview map, the site is in an area of minimal flooding and outside of a 100-year flood zone. Eastern Municipal Water District services the site and provides potable water to Moreno Valley.

5.2.2 Impacted Aquifers from Site Releases

There are no known site releases.

5.3 FACTORS RELATED TO AIR PATHWAYS

There are no known releases to the site, therefore, the potential for release of hazardous substances from the site to the atmosphere is considered negligible. The site is classified as being in climate zone 10 (Riverside) by the California Energy Commission. It is an area that is semi-arid with hot, dry summers and mild winters. The Western Regional Climate Center collected data from Riverside from 1893 to 2016. The mean temperature in

the area ranges from a low of 48.6° Fahrenheit (°F) in the winter to a high of 79.5°F in the summer. The average annual precipitation is 10.21 inches per year.

5. Environmental Setting

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6. Sampling Activities and Results

This section describes methods and results of the soil sampling activities conducted at the site on July 10, 2018. Figures 4 and 5 show the sampling locations for the project area. Table 1 provides a summary of the sampling and analysis program for the PEA. The Health and Safety Plan used for the site is included in Appendix D.

- Soil sampling activities were conducted at the site on July 10, 2018 for the PEA.
- Sixty-seven (67) discrete soil samples plus fifteen (15) duplicates were collected.
- Seven (7) composite soil samples plus two (2) composite duplicate soil samples were collected from 0 to 0.5 feet below ground surface (bgs) and were analyzed for organochlorine pesticides (OCPs) by EPA Method 8081A to assess for potential residual OCPs from historic agricultural operations. Based on the results, 11 discrete soil samples were analyzed for OCPs
- Two (2) composite soil samples collected from 2.5 to 3.0' bgs near structures were analyzed for OCPs by EPA Method 8081A.
- Five (5) soil samples plus one duplicate from 0 to 0.5 feet bgs were analyzed for arsenic by EPA Method 6010B.
- Thirteen (13) soil samples plus three duplicates from 0 to 0.5 feet bgs were analyzed for lead by EPA Method 6010B. Based on the surface soil sample results two additional soil samples from 2.5 to 3.0' bgs were subsequently analyzed for a total of 15 samples analyzed for lead.
- Nine soil samples plus one duplicate were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 B to assess the above ground storage tank and former windmill.

On March 29, 2019, thirty-six step-out samples were collected from 18 sample locations. Table 2 provides a summary of the step-out samples that were collected as part of the PEA.

- Ten step-out samples were collected to delineate the detection of chlordane above screening levels in the surface soil sample collected on the north side of the residential structure. When the samples were collected in July 2018 for the PEA, the DTSC SL was lower and has been subsequently revised. No chlordane concentrations exceed the revised DTSC SL. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs. Five surface samples were analyzed for OCPs by EPA Method 8081A.
- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the south side of the garage. Soil samples were collected from five locations

from 0.5 feet bgs and from 2.5 feet bgs. Five surface soil samples from this area were analyzed for lead by EPA Method 6010B.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the north side of the metal barn. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs. Five surface soil samples from this area were analyzed for lead by EPA Method 6010B.

- Six step-out samples were collected to delineate the detection of dieldrin at the screening level in the surface soil collected near the south side of the AST located in the remaining orchard. Soil samples were collected from three locations from 0.5 feet bgs and from 2.5 feet bgs. Three surface samples were analyzed for OCPs by EPA Method 8081A.

6.1 UTILITY CLEARANCE

Prior to commencement of field activities, USA North was notified of our intent to conduct subsurface investigations at least 48 hours prior to initiation of intrusive field tasks. USA contacted all utility owners of record within the site vicinity and notified them of our intention to conduct subsurface investigations in proximity to buried utilities. All utility owners of record, or their designated agents, were expected to clearly mark the position of their utilities on the ground surface throughout the area designated for investigation.

6.2 SAMPLING PROCEDURES

Soil samples were collected following protocols described in DTSC's PEA Guidance Manual (DTSC 2015), and DTSC's Interim Guidance for Sampling Agricultural Properties (Third Revision) (DTSC 2008). The sampling program that was implemented is included in Table 1 and all sampling locations are shown on Figures 4 and 5. A Professional Geologist was on-site to direct and observe field activities.

6.2.1 Soil Sampling Methods and Procedures

Soil sampling was conducted using a truck-mounted direct push drill rig (Geoprobe™). The Geoprobe™ rig advanced acetate lined sample core barrels sleeves to desired depths using a hydraulic ram or pneumatic hammer system. The inside diameter of the core barrel was 1.5 to 2.0 inches. The sample barrel was retrieved and the sample interval was observed, logged and preserved. Soil samples were preserved by placing Teflon™ sheeting and polyethylene caps leaving no headspace and placing them in sealable plastic bags. Soil samples were collected using a hand auger for the step-out sampling in March 2019.

Observations pertaining to the soil type were described by the field geologist. Each soil sample was labeled with the sample number, sample depth, and the date and time the sample was collected. Samples were immediately placed in an ice-filled cooler and listed on a chain-of-custody form. Any observation pertaining to potential soil contamination or soil source was recorded. The chain-of-custody form is included in Appendix E.

6.3 QUALITY CONTROL SAMPLING PROCEDURES

Field quality control samples associated with the sampling program included duplicate soil samples, equipment blanks, and soil matrix spike/matrix spike duplicate (MS/MSD) samples, in accordance with the DTSC PEA Guidance Manual (DTSC 2015). Duplicate soil samples were collected and analyzed and are listed on Table 1 for soil samples.

Field duplicate samples were collected and analyzed to evaluate sampling and analytical precision. Field duplicates for soil gas were collected at a frequency of at least one per day. Field duplicates for soil samples were collected at a rate of approximately 10% of the samples collected. The duplicate samples were analyzed for all laboratory analyses requested for the primary samples collected.

The Quality Assurance Project Plan (QAPP) is included in Appendix F.

6.4 DECONTAMINATION PROCEDURES

All equipment that came into contact with the soil was decontaminated consistently to assure the quality of samples collected. Decontamination was conducted prior to and after each use of a piece of equipment. All sampling devices used were decontaminated using the following procedures:

- Non-phosphate detergent and distilled water wash, using a brush; and
- A double deionized/distilled water rinse.

6.5 INVESTIGATIVE-DERIVED WASTE MANAGEMENT

In the process of collecting environmental samples during the field-sampling program, different types of potentially contaminated investigation-derived wastes (IDW) were generated that include the following:

- Used personal protective equipment (PPE);
- Disposable sampling equipment;
- Soil cuttings; and
- Decontamination fluids.

The EPA's National Contingency Plan requires that management of IDW comply with all applicable or relevant and appropriate requirements to the extent practicable. The sampling plan followed the Office of Emergency and Remedial Response Directive 9345.3-02 dated May 1991, which provides the guidance for the management of IDW. In addition, other legal and practical considerations that may affect the handling of IDW will be considered.

Listed below are the procedures that were followed for handling the IDW:

- Used PPE and disposable equipment were double bagged and placed in a municipal refuse dumpster. These wastes are not considered hazardous and can be sent to a municipal landfill.
- Soil cuttings were returned to their original borehole.

6.6 ANALYTICAL RESULTS

Organochlorine pesticide results in soil are summarized in Table 3. Table 4 is a summary of total petroleum hydrocarbon results and Table 5 summarizes arsenic and lead results in soil. Laboratory summary reports for all analytes are included in Appendix E.

6.7 DISCUSSION OF RESULTS

6.7.1 Soil Description

The native soils encountered and collected during the investigation mostly consisted of loose to medium stiff brown silt with or without fine sand. Native medium dense brown silty fine sand was also encountered to a lesser extent. No odors or staining were observed by the field geologist. Groundwater was not encountered.

6.7.2 Soil Results

6.7.2.1 ORGANOCHLORINE PESTICIDES

The following six organochlorine pesticides were detected in the composite soil samples analyzed at low concentrations above the laboratory reporting limits: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin and endrin aldehyde.

- 4,4'-DDD was detected in one out of the seven composite samples analyzed at a maximum concentration of 0.03 mg/kg. The EPA Region 9 regional screening level (RSL) for residential exposure for 4,4'-DDD in a 4:1 composite is 0.48 mg/kg.
- 4,4'-DDE was detected in ten composite samples analyzed at a maximum concentration of 0.091 mg/kg in a 4:1 composite, 0.3 mg/kg in a 3:1 composite, and 0.36 mg/kg in a discrete soil sample The EPA RSL for 4,4'-DDE is 0.5 mg/kg in a 4:1 composite, 0.63 mg/kg for a 3:1 composite and 2.0 mg/kg for a discrete sample.
- 4,4'-DDT was detected in seven composite samples analyzed at a maximum concentration of 0.12 mg/kg in a 4:1 composite, 0.34 mg/kg in a 3:1 composite, and 0.44 mg/kg in a discrete soil sample The EPA RSL for 4,4'-DDT is 0.48 mg/kg in a 4:1 composite, 0.63 mg/kg for a 3:1 composite and 1.9 mg/kg for a discrete sample.

- Chlordane was detected in four composite samples analyzed at a maximum concentration of 0.16 mg/kg in a 4:1 composite sample B-20, B-21, B-22, B-23 that was collected around the footprint of the residence. The EPA RSL for chlordane is 0.42 mg/kg in a 4:1 composite, and the DTSC SL for a 4:1 composite sample is 0.11 mg/kg. Based on the exceedance of the DTSC SL but not the EPA RSL, the discrete samples that comprise the composite were analyzed. Sample B-20 located on the north side of the house was slightly elevated above the DTSC SL but not the EPA RSL. The other samples in the composite were not elevated and the deeper composite sample collected from 2.5 feet bgs from the same location was not elevated for chlordane above screening levels.

- Dieldrin was detected in eight composite samples analyzed at a maximum concentration of 0.017 mg/kg in a 4:1 composite sample and 0.033 mg/kg in a 3:1 composite sample. The EPA RSL for dieldrin is 0.009 mg/kg in a 4:1 composite, 0.11 mg/kg for a 3:1 composite and 0.034 mg/kg for a discrete sample. The composites with the highest exceedances of the composite adjusted screening levels were analyzed discretely with the highest detect of 0.044 in discrete soil sample B-19 at 0.5 feet bgs collected from the orchard near the AST. Dieldrin was non-detect in the sample collected from 2.5' bgs.

- Endrin Aldehyde was detected in two composite samples at a maximum concentration of 0.023 mg/kg in a 4:1 composite sample and the EPA RSL for a 4:1 composite for endrin is 4.75 mg/kg.

The results of the step-out sampling are summarized below:

- Chlordane was below SLs in the soil samples collected on the north side of the residential structure.

- Six other pesticides were detected in surface soil on the north side of the house at concentrations below SLs: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endrin aldehyde, and heptachlor epoxide.

- One pesticide, 4,4'-DDE was detected below SLs in step-out samples collected to delineate the detection of dieldrin in the surface soil collected near the south side of the former AST. Dieldrin was not detected in the step-out samples in the former AST area.

Table 3 has a summary of some of the organochlorine pesticides analyzed and their detected levels and Appendix E contains the laboratory reports.

6.7.2.2 TOTAL PETROLEUM HYDROCARBONS (TPH)

TPH was detected in one of the nine soil samples and duplicate soil sample taken at the site to assess the diesel AST and windmill area. Samples were analyzed from 0.5' feet and from 5 feet bgs. TPH was reported in one sample at a concentration of 57 mg/kg in sample B-5 from 5' bgs collected near the former diesel AST. TPH was not detected in the other samples analyzed. TPH results are summarized on Table 4. Laboratory reports for TPH analysis are included in Appendix E.

6. Sampling Activities and Results

6.7.2.3 ARSENIC

Arsenic was not detected above the laboratory reporting limits in the five soil samples and one duplicate sample. Laboratory reports for arsenic analysis are included in Appendix E.

6.7.2.1 LEAD

Lead was detected in 14 out of the 15 soil samples and three duplicate soil samples analyzed ranging in concentration from 2.41 mg/kg to 214 mg/kg. Two soil samples collected near the structures (barn and garage) were elevated above DTSC SL of 80 mg/kg. Sample B-29 was collected on the south side of the garage and had a concentration of 121 mg/kg in the sample collected at 0.5 feet bgs and dropped to below the screening level in the sample collected from the same location at 2.5 feet bgs to 2.89 mg/kg. Sample B-30 was collected on the north side of the barn and had a concentration of 214 mg/kg in the sample collected at 0.5 feet bgs and decreased to below the screening level in the sample collected from the same location at 2.5 feet bgs to a concentration of 2.41 mg/kg.

Lead was analyzed in ten step-out samples to delineate the two areas where lead had been detected above SLs: area south of the garage and on the north side of the metal barn. Lead concentrations ranged from 1.91 mg/kg to 21.4 mg/kg, below the DTSC SL of 80 mg/kg for lead in the step-out samples.

Lead results are summarized on Table 5. Laboratory reports for lead analysis are included in Appendix E.

7. Human Health Screening Evaluation

A human health screening assessment was conducted to evaluate the potential threat to human health at the proposed school site. The established PEA screening process was used to determine if there are levels of contamination at the site that may cause a concern about effects on human health. The purpose of the human health risk screening evaluation was to assess whether levels of contaminants in soil at the site could pose a threat to human health under conservative (health-protective) exposure assumptions. The PEA requires a residential land use scenario regardless of current use and zoning.

7.1 CONCEPTUAL SITE MODEL

The potentially complete soil exposure pathways include soil ingestion, dermal exposure to soil, and inhalation of particulates and volatile organics detected in soil. Potentially exposed populations for the site include on-site school age children and employees based on future land use plans. In order to estimate what the potential exposures may be under current and future land use plans, risk calculations were conducted using the data that were collected for the PEA. Figure 6 is the conceptual site model for the site.

7.2 CHEMICALS OF CONCERN SELECTION

The chemicals of concern (COCs) for the site that were evaluated in the PEA screening risk assessment have been identified based on site history, sampling results, DTSC guidance documents and protocol. The potential COCs for the site include the seven organochlorine pesticides (OCPs) ,4'-DDT, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin, endrin aldehyde, and heptachlor epoxide and lead. Arsenic was not included as a COC for the site because it was not detected in the soil samples analyzed. TPH was not included since it was detected in one sample at a low concentration less than 100 mg/kg.

7.3 RISK ASSESSMENT

7.3.1 Risk-Based Screening Level Approach - OCPs

The DTSC has developed modified screening levels based on the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for use in the human health risk assessment process (DTSC 2018). In 2008, the EPA released RSLs to replace the Preliminary Remediation Goals (PRGs) formerly available from several EPA Regional Headquarters. DTSC's Human and Ecological Risk Office (HERO) reviewed the differences in methodology and RSL concentrations to develop a methodology to incorporate the RSLs into HERO human health risk assessment consultation and review. For the majority of the approximately 800 listed RSL chemicals, HERO confirms the values listed in the EPA RSL tables. However, some values listed in the EPA RSL tables differ from values calculated using CalEPA toxicity criteria and risk assessment procedures and has prepared screening levels tables for compounds with their recommend toxicity criteria. HERO has prepared a reference table for compounds in air with DTSC-modified screening levels (DTSC-SLs) that were used in conjunction

7. Human Health Screening Evaluation

with EPA RSLs to evaluate chemical concentrations at the proposed school site. HERO's development of DTSC-SLs for air includes route extrapolation for all chemicals lacking an inhalation toxicity value but which are identified as volatile by the EPA RSL methodology, or by DTSC's vapor intrusion guidance and accompanying screening models for vapor intrusion.

RSLs and DTSC-SLs can be used to identify contamination which may warrant cleanup, identify sites which warrant no further action or investigation, and be used as initial cleanup goals. The DTSC recommends that they are not to be used to perform a human health Baseline Risk Assessment but to assist in tasks preceding a human health Baseline Risk Assessment. HERO recommends that the RSLs and DTSC-SLs be used to screen sites as a whole by calculating ratios of the concentration of a particular chemical in a medium (e.g. soil, water, or air) to its risk based concentration are calculated and the ratio is summed across all chemicals and media to estimate a total risk and hazard for the site. The derivation of the EPA RSLs and DTSC-SLs does not include an evaluation of the intrusion of vapors from the subsurface to indoor air.

For a screening level assessment DTSC recommends each chemical of concern be divided by their corresponding risk-based screening levels. For carcinogens the ratio is multiplied by 10-6 to provide an estimate of risk. Risk is summed across all carcinogenic chemicals. For non-carcinogens, hazard quotients are summed across all chemical to provide a hazard index. Carcinogens should be evaluated both for carcinogenicity and for threshold toxicity (noncancer hazard).

Because there are multiple chemicals detected at the Site, the cumulative risk for the Site is calculated by summing the individual risk from each chemical.

$$\text{Cumulative Risk} = (\text{concx}/\text{RSLx} + \text{concy}/\text{RSLy} + \text{concz}/\text{RSLz}) \times 10\text{-}6$$

The estimated cumulative carcinogenic risk using maximum concentration of pesticides detected at the Site can be estimated using carcinogenic DTSC-SLs and EPA RSLs as follows for residential land uses:

Carcinogenic Risk Estimate Using Maximum Concentrations

Chemical	Maximum Concentration mg/kg	Number of Samples in Composite or Discrete	DTSC-SL or EPA RSL adjusted mg/kg	Ratio Maximum Concentration to SLs
4,4'-DDD	0.03	4	0.575	0.05
4,4'-DDE	0.36	Discrete	2	0.18
4,4'-DDT	0.44	Discrete	1.9	0.23
Chlordane	0.99	Discrete	1.7	0.58
Dieldrin	0.044	Discrete	0.034	1.29
Endrin Aldehyde*	0.039	Discrete	NC	0.00
Heptachlor epoxide	0.044	Discrete	0.07	0.57
Total Risk				2.9E-06

*Screening level for endrin was used as a surrogate for endrin aldehyde.

Dieldrin slightly exceeded the EPA RSL in one discrete soil sample B-19. Step-out samples around B-19 did not detect any dieldrin above the laboratory reporting limit. The estimated carcinogenic risk using maximum concentrations at the site and screening against DTSC and EPA screening levels is 2.9E-06, slightly above the level of concern of one in a million increased cancer risk but within the risk management range of 1E-04 to

7. Human Health Screening Evaluation

1E-06. The risk estimate is very conservative using the maximum reported concentrations at the site and the one OCP that was elevated above screening levels, dieldrin, was detected below levels of concern in the samples collected from the same locations at 2.5' bgs indicating the elevated areas do not extend in the soil profile and was nondetect in step-out samples collected to delineate the dieldrin.

The estimated carcinogenic risk was recalculated using the 95% UCL concentrations that were calculated using ProUCL5.1. Discrete sample results were used in the statistical program. Because 4,4'-DDD was detected in two samples, ProUCL 5.1 did not calculate a 95% UCL concentration so the maximum concentration was used in the calculation. ProUCL 5.1 statistical results are included in Appendix E.

Carcinogenic Risk Estimate Using 95% UCL Concentrations

Chemical	95% UCL Concentration mg/kg	Number of Samples in Composite or Discrete	DTSC-SL or EPA RSL adjusted mg/kg	Ratio 95% UCL Concentration to SLs
4,4'-DDD	0.03	4	0.575	0.05
4,4'-DDE	0.18	Discrete	2	0.09
4,4'-DDT	0.135	Discrete	1.9	0.07
Chlordane	0.186	Discrete	1.7	0.11
Dieldrin	0.0118	Discrete	0.034	0.35
Endrin Aldehyde*	0.0291	Discrete	NC	0.00
Heptachlor epoxide	0.009	Discrete	0.07	0.13
Total Risk				8.0E-07

*Screening level for endrin was used as a surrogate for endrin aldehyde.

The estimated carcinogenic risk using the 95% UCL concentrations at the site and screening against screening levels is 8.0E-07, below the level of concern of 1E-06.

The estimate noncancer Hazard Index for each detected OCP using maximum concentrations detected at the site can be estimated using non carcinogenic DTSC-SLs and EPA RSLs as follows for residential land uses:

Hazard Index Using Maximum Concentrations

Chemical	Maximum Concentration mg/kg	Number of Samples in Composite or Discrete	DTSC-SL or EPA RSL adjusted mg/kg	Ratio Maximum Concentration to SLs
4,4'-DDD	0.03	4	0.475	0.06
4,4'-DDE	0.36	Discrete	23	0.02
4,4'-DDT	0.44	Discrete	37	0.01
Chlordane	0.99	Discrete	35/35	0.02
Dieldrin	0.044	Discrete	3.2	0.01
Endrin Aldehyde*	0.039	Discrete	19	0.00
Heptachlor epoxide	0.044	Discrete	0.99	0.04
Total Hazard Index				0.17

*Screening level for endrin was used as a surrogate for endrin aldehyde.

The estimated noncarcinogenic Hazard Index for each detected OCP was recalculated using the 95% UCL concentrations calculated by ProUCL5.1. Discrete sample results were used in the statistical program. Because

7. Human Health Screening Evaluation

4,4'-DDD was detected in two samples, ProUCL 5.1 did not calculate a 95% UCL concentration so the maximum concentration was used in the calculation.

Hazard Index Using 95% UCL Concentrations

Chemical	95% UCL Concentration mg/kg	Number of Samples in Composite or Discrete	DTSC-SL or EPA RSL adjusted mg/kg	Ratio Maximum Concentration to SLs
4,4'-DDD	0.03	4	0.475	0.06
4,4'-DDE	0.18	Discrete	23	0.008
4,4'-DDT	0.135	Discrete	37	0.004
Chlordane	0.186	Discrete	35/35	0.005
Dieldrin	0.0118	Discrete	3.2	0.0037
Endrin Aldehyde*	0.0291	Discrete	19	0.0015
Heptachlor Epoxide	0.009	Discrete	0.99	0.009
Total Hazard Index				0.09

*Screening level for endrin was used as a surrogate for endrin aldehyde.

The cumulative hazard index for noncarcinogenic risk for the site was significantly less than 1 using the maximum concentrations and the 95% UCL concentrations for a residential exposure scenario. A total HI of 1 or less indicates that there is no cause for concern for adverse noncarcinogenic health effects.

7.3.2 Lead

DTSC's Lead Risk Assessment Spreadsheet Version 8 (DTSC 2011) was used to estimate blood lead concentrations resulting from exposure to lead at the site using the remaining lead concentrations in soil.

The maximum lead concentration of 214 mg/kg, and the 95% upper confidence limit (UCL) of 46 mg/kg were used in the risk assessment model.

The DTSC lead level in soil considered protective for health screening purposes is the concentration resulting in a 90th percentile blood lead level of 1 microgram per deciliter (µg/dl) of blood. The lead model estimates potential blood lead levels from multiple exposure routes including drinking water, air, diet and soil. Model default values or justifiable site-specific values may be used to represent lead concentrations in all media. DTSC' Lead Spread Model Version 8.0 was used to estimate blood lead levels using the following DTSC's default exposure parameters:

EXPOSURE PARAMETERS		
	units	children
Days per week	days/wk	7
Geometric Standard Deviation		1.6
Blood lead level of concern (ug/dl)		1
Skin area, residential	cm2	2900
Soil adherence	ug/cm2	200
Dermal uptake constant	(ug/dl)/(ug/day)	0.0001
Soil ingestion	mg/day	100
Soil ingestion, pica	mg/day	200

Ingestion constant	(ug/dl)/(ug/day)	0.16
Bioavailability	unitless	0.44
Breathing rate	m3/day	6.8
Inhalation constant	(ug/dl)/(ug/day)	0.192

The blood lead level estimated is above 1 µg/dl for residential child using the maximum lead concentration but is below the level of concern using the 95% UCL lead concentration. The following table presents a summary of the 90th percentile blood lead levels estimated using DTSC's Lead Risk Assessment Spreadsheet Version 8 is for the maximum, 95% UCL and average lead concentrations at the site.

	Lead Concentration mg/kg	Estimated Blood Lead Child µg/dl
Maximum Concentration	214	2.8
95% UCL Concentration	46	0.6

7.4 UNCERTAINTY ANALYSIS

The data collected are subject to uncertainty associated with sampling and analysis. These data are presented in other parts of the PEA. In the analysis it was assumed that samples collected were representative of conditions to which various populations may be exposed. However, the collected samples may not be completely representative due to biases in sampling and to random variability of samples. In general, sampling was biased toward areas of known and suspected elevated chemical concentrations, which will lead to an overestimation of risk when these results are assumed to represent a larger area. The placement of soil borings was in part, purposely biased to detect and characterize potential hot spots of soil based on historical site use. This type of sampling approach is likely to overestimate the chemical concentrations to which a receptor would be exposed and the potential health impact to the receptors evaluated.

Samples were analyzed using California State Certified Laboratory procedures and were subjected to limited review, to obtain data suitable for decision-making. However, it should be understood that sample analysis is subject to uncertainties associated with precision, accuracy and detection of chemicals at low concentrations.

7. Human Health Screening Evaluation

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8. Ecological Screening Evaluation

8.1 SITE CHARACTERIZATION

Based on visual observations during the site visit and information provided by the District, a portion of the site is currently developed with a residence and the remaining site is an former orchard that had been used for agriculture for over 100 years. The area is disturbed and does not support wildlife habitats.

8.2 BIOLOGICAL CHARACTERIZATION

The site is a disturbed area that has been actively used for agriculture and does not support wildlife habitats.

8.3 ECOLOGICAL PATHWAY ASSESSMENT

No assessment of potential exposures to sensitive ecological receptors is necessary based on the low concentrations reported and disturbed environment.

8.4 ECOLOGICAL SCREENING EVALUATION SUMMARY

An ecological screening evaluation was not conducted for the site because of the lack of wildlife habitats and low concentrations of chemicals reported at the proposed school site.

8. Ecological Screening Evaluation

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9. Quality Assurance/Quality Control (QA/QC) Implementation

The QA/QC Program was implemented in accordance with the DTSC PEA Guidance Manual (DTSC 2015). The primary quality control features of the QA/QC program include the collection and analysis of field quality control samples and the data validation. The Quality Assurance Project Plan is included as Appendix F.

Quality control samples collected in the field included duplicate samples (ten soil duplicates collected and one composite soil duplicate and three discrete soil duplicates analyzed) and equipment rinseate blanks as described in Section 6. The data for these quality control samples were reviewed as part of the data validation process, along with results from laboratory quality control analyses. Data validation was performed in compliance with DTSC's PEA Guidance Manual, using protocols consistent with the USEPA National Functional Guidelines (DTSC 2015). Each sample was analyzed for the specified suite of analyses presented in Section 6. Data from each of the analyses were evaluated with respect to the quality control criteria listed below. Data for the project as a whole were evaluated in terms of completeness.

- Holding times;
- Field blanks;
- Laboratory method and calibration blanks;
- Initial and continuing calibrations;
- System monitoring compounds (surrogates - organic analyses only);
- Laboratory control samples (LCS) and LCS duplicate samples (LCSD) - as applicable;
- Matrix spikes (MS)/Matrix spike duplicates (MSD);
- Field replicates/confirmatory samples; and
- Compound identification and quantitation.

Data quality for the project is very good, and the data collected are of acceptable quality for use in the screening evaluation. The following issues were identified during the course of the validation review.

Results from the field duplicate samples indicate appropriate sample collection and handling procedures were implemented, and that laboratory analytical precision was also acceptable.

9. Quality Assurance/Quality Control (QA/QC) Implementation

Data validation qualifier flags have been added to those data that did not meet acceptance criteria as defined in School Quality Assurance Project Plans. Results of the validation indicate that all samples collected and analyzed are useful in characterizing the site and assessing the human health and ecological risks for the site. No detectable concentrations were qualified as rejected (R) or were considered to be unusable based on the validation evaluation. Data qualified as estimated (J/UJ) exhibited some bias during analysis and should be considered as an approximate measure of the respective analyte concentration. Qualified data are presented along with the data results in the analytical summary tables provided in this report.

Field activities were observed to be conducted in a manner consistent with the QA/QC procedures presented in the DTSC PEA Guidance Manual (DTSC 2015). No findings were identified that significantly affect the quality of the samples collected or the resulting data evaluation.

9.1 DATA VALIDATION

Data validation was performed for all samples submitted as part of PlaceWorks' evaluation of soil. A&R Laboratories, Inc. was the lead laboratory for the PEA and performed the required soil analyses.

Validation was performed in accordance with the general guidance provided in the USEPA Functional Guidelines for Evaluating Inorganic Analyses (USEPA 1994) and in accordance with the professional judgment of the validation team. Validation was performed to assess analytical performance in terms of the DQOs accuracy, precision, sensitivity, and completeness. Comparability and representativeness DQOs for the samples collected are addressed by the correct implementation of the procedures defined in the sampling and analysis plan.

A summary of the validation program, in terms of the DQOs listed above, is provided in the following sections. Data qualifiers assigned to results, if required, were as follows:

A. Result is estimated due to failure to meet one of the DQO criteria associated with the sample result or associated sample batch. Results reported at concentrations below standard laboratory reporting limits, but above method detection limits, were flagged "J" by the laboratory, or "B" in the case of metals. These data are validated as J/estimated because they are below the reliable quantitation limits determined by the laboratory.

U. Result is qualified as not-detected at the reported value. This qualifier is used when results from blank analyses indicate that detections in associated samples may be biased high due to potential contaminant conditions in the field or laboratory.

UJ. Result is qualified as not-detected at the reported value, and the value is determined to be estimated. This qualifier commonly results when quality control failures are associated with analytes that are not detected, or when detections are qualified "U" due to blank contamination combined with a "J" qualifier resulting from another QC problem.

R. Result is rejected due to severe QC failure, or due to multiple lessor QC problems that are determined to be additive.

9.2 ACCURACY

Accuracy was evaluated by assessing the results of holding times, field and laboratory blanks, initial and continuing calibrations, surrogate spike recoveries (organic analyses), LCS recoveries, MS analyses, and interference check samples (metals by inductively coupled plasma).

Frequency and control criteria for initial and continuing calibration verifications were met. The method blank data showed non-detectable levels for all constituents. MS and MSD were performed at the required frequencies. All recoveries were within acceptable limits. LCS analysis was performed at required frequencies and all recoveries were within acceptable limits. Surrogate recoveries for all samples were within acceptable control limits.

9.3 PRECISION

Precision was evaluated by assessing the results between MS and MSD analyses, LCS and LCSD analyses, between laboratory duplicate analyses. The precision DQO was generally satisfied for the samples collected during the project. Precision was evaluated as the relative percent difference (RPD) between control sample results. RPD criteria reported by the laboratory were used to assess precision. RPDs were within the appropriate control limits and precision is considered acceptable.

9.4 SENSITIVITY

Sensitivity was addressed by ensuring that the reporting limits provided by the laboratories met those as requested in the work plans and task orders provided to the laboratory. Data were qualified in cases where results were reported at concentrations below standard laboratory reporting limits, but above the method detection limits that may have been required to meet the sensitivity requirements for the project. Such results were flagged by the laboratory as either J or B qualified data. These data retain a J/estimated qualifier due to potential decreased reliability at low concentration levels.

9.5 COMPLETENESS

Completeness is an evaluation of the overall sampling program with respect to data generated that is usable versus data that may have been rejected. No data was rejected during the data validation process for this project. The completeness objectives (minimum 90 percent) for this project are therefore considered to be satisfied for all analyses.

9. Quality Assurance/Quality Control (QA/QC) Implementation

9.6 DATA VALIDATION CHART

The following table is a summary of pertinent quality indicators that were verified during the data validation process.

ACCEPTABILITY		
QUALITY INDICATOR	SOIL EPA Method 6010B Target Analyte: Arsenic	SOIL EPA Method 8081A Target Analyte: 4,4'-DDT
Completeness of Laboratory Reports (e.g., laboratory, client, and sample identifications; ELAP certification number, project name, sample matrix, sample collection, preservation, preparation, extraction, analysis dates; analytical methods; analytes; reporting units and limits; dilution factors; report page numbering system; designated title and signatures)	Y See discussion above	Y See discussion above
Reporting Limit (RL)	Y 1 mg/kg for ARL	Y 0.0020 mg/kg for ARL
Chain of Custody	Y	Y
Sample Containers and Conditions	Y	Y
Holding Time (<28 days)	Y	Y
Sample Preservation	Y	Y
Equipment Rinsate Blanks	Y	Y
Field Duplicates	Y	Y
Field QC Samples – Others	NA	NA
Surrogate Recoveries	NA	NA
Method Blanks	Y	Y
LCS % Recovery	Y	Y
MS/MSD % Recovery	See discussion above	See discussion above
MS/MSD % RPD	See discussion above	See discussion above
Laboratory Duplicates	See discussion above	See discussion above
Laboratory QC Samples – Others	NA	NA
Compound Identification	Y	Y
Compound Quantitation	Y	Y
Dilution Factors	Y	Y
Data Qualifiers	Y	Y
Confirmation of Positive Samples	NA	NA
Observations of Significance	NA	NA
Case Narrative	Y	Y
Instrument Tuning	NA	NA
Initial Calibration	Lab	Lab
Calibration Verification	Lab	Lab
Interference Check Standard	NA	NA
Others	NA	NA

NOTES:

Y = acceptable or in compliance; Lab = responsible by the Laboratory

NA = not applicable

10. HASP Implementation

PlaceWorks prepared a site-specific HASP pursuant to Health and Safety Code 1910.120. The plan addressed the following:

- Identification and description of potentially hazardous substances that may be encountered during field operations;
- PPE and clothing for site activities; and
- Measures that need to be implemented in the event of an emergency.

PlaceWorks field personnel reviewed the HASP prior to commencing fieldwork. Prior to initiation of field activities each day, a site safety briefing was conducted to identify potential physical and chemical hazards and measures to be taken in event of an emergency. All on-site personnel were required to sign the site safety briefing form.

During field activities, all personnel within the exclusion zone wore appropriate level D PPE. A copy of the HASP is contained in Appendix D.

10. HASP Implementation

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11. Field Variances

Soil sampling was conducted on the project area in general accordance with the following guidance: PEA Guidance Manual (DTSC 2015), Interim Guidance for Sampling Agricultural Properties (Third Revision) (DTSC 2008), and Guidance for Evaluating School Sites with Potential Soil Contamination as a result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticide, and Polychlorinated Biphenyls from Electrical Transformers (DTSC 2006).

11. Field Variances

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12. Evaluations of Applicable or Relevant Laws and Regulations Pertaining to School Sites

State of California Department of Education Code Section 17213 and Public Resources Code 21151.8 prohibit the approval of a project involving the purchase of a school site or the construction of a new elementary or secondary school by a school district unless the district first determines whether the site is:

- The site of a current or former hazardous waste disposal site or solid waste disposal site and, if so, whether the wastes have been removed.

- A hazardous substance release site identified by the State Department of Health Services in a current list adopted pursuant to Section 25356 for removal or remedial action pursuant to Chapter 6.8 (commencing with Section 25300) of Division 20 of the Health and Safety Code.

- A site which contains one or more pipelines, situated underground or aboveground, which carries hazardous substance, acutely hazardous materials or hazardous wastes, unless the pipeline is a natural gas line which is used only to supply natural gas to that school or neighborhood.

- In addition, the school district must contact the local air pollution control district to identify any facilities located within ¼-mile of the proposed school site that might reasonably be anticipated to emit hazardous emissions or handle hazardous materials, substances or waste. If any facilities exist within the ¼-mile the district must be able to make a written finding that:

    a) The health risks from the facilities do not and will not constitute an actual or potential endangerment of public health to persons who attend or are employed at the proposed school; or

If potential hazards exist and have been identified, corrective measures can be implemented that mitigate air emissions to levels that do not constitute an actual potential endangerment of public health to persons who would attend or be employed at the proposed school.

For this proposed school site, a records search of any hazardous waste/substance storage, treatment, or disposal activities at the site and within a ¼-mile of the site was conducted. No evidence of the site being used as a solid waste or hazardous waste disposal site was found. There was no indication that aboveground or underground pipelines are located on the school site.

12. Evaluations of Applicable or Relevant Laws and Regulations Pertaining to School Sites

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13. Conclusions and Recommendations

After reviewing and analyzing the analytical and human health screening evaluation results of this PEA, PlaceWorks concludes the following with respect to the site:

- Soil sampling activities were conducted at the site on July 10, 2018 for the PEA.
- Sixty-seven (67) discrete soil samples plus fifteen (15) duplicate soil samples were collected.
- Seven (7) composite soil samples plus two (2) composite duplicate soil samples were collected from 0 to 0.5 feet below ground surface (bgs) and were analyzed for organochlorine pesticides (OCPs) by EPA Method 8081A to assess for potential residual OCPs from historic agricultural operations. Based on the composite sample results, 11 discrete soil samples were analyzed for OCPs.
- Two (2) composite soil samples collected from 2.5 to 3.0' bgs near wood structures were analyzed for OCPs by EPA Method 8081A.
- Five (5) soil samples plus one duplicate from 0 to 0.5 feet bgs were analyzed for arsenic by EPA Method 6010B.
- Thirteen (13) soil samples plus three duplicates from 0 to 0.5 feet bgs were analyzed for lead by EPA Method 6010B. Based on the results two soil samples from 2.5 to 3.0' bgs were subsequently analyzed.
- Nine soil samples plus one duplicate were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 B to assess the aboveground storage tank (AST) and former windmill.

The results of the field program are summarized below:

- The following six OCPs were detected in some of the composite samples: 4,4'-DDT, 4,4'-DDE, 4,4'-DDT, chlordane, dieldrin and endrin aldehyde.
- OCP sample concentrations were screened using both EPA Region 9 Residential Screening Levels (RSLs) and if available DTSC- Modified Residential Screening Levels (SLs). Dieldrin was above the EPA RSL adjusted for the number of samples that comprised the composite in five surface composite samples. The individual soil samples that comprised the composite were analyzed discretely and one sample, B-19, located in the orchard, was slightly above the EPA RSL.
- Chlordane was elevated above the DTSC SL in one composite that was collected near the residential structure and was not elevated in the deeper composite sample collected from same locations. The chlordane concentration was not above EPA RSLs. The individual soil samples that comprised the

13. Conclusions and Recommendations

composite were analyzed discretely and chlordane was elevated above the DTSC SL but not the EPA RSL in one soil sample, B-20, that was collected from 0.5 feet bgs on the north side of the residential structure. The discrete chlordane concentration was 0.68 milligrams per kilogram (mg/kg) and the DTSC SL is 0.44 mg/kg and EPA RSL is 1.7 mg/kg. When the samples were collected in July 2018, the DTSC SL was lower and has been subsequently revised to the EPA RSL. Chlordane concentrations do not exceed the revised DTSC SL.

- A low concentration of TPH was detected in one soil sample, B-5 collected from 5 feet bgs on the north side of the diesel AST located in the remaining small grove of citrus trees located south of the barn. The total TPH concentration was 57 mg/kg.

- Lead was detected in 14 out of the 15 soil samples and three duplicate soil samples analyzed ranging in concentration from 2.41 mg/kg to 214 mg/kg. Two soil samples collected near the structures (barn and garage) were elevated above DTSC SL of 80 mg/kg. Sample B-29 was collected on the south side of the garage and had a concentration of 121 mg/kg in the sample collected at 0.5 feet bgs and dropped to below the screening level in the sample collected from the same location at 2.5 feet bgs to 2.89 mg/kg. Sample B-30 was collected on the north side of the barn and had a concentration of 214 mg/kg in the sample collected at 0.5 feet bgs and decreased to below the screening level in the sample collected from the same location at 2.5 feet bgs to a concentration of 2.41 mg/kg.

- Arsenic was not detected above the laboratory reporting limits in the nine soil samples and one duplicate.

In March 2019, thirty-six step-out samples were collected from 18 sample locations. DTSC in September 2018 had requested step-out samples in the following areas:

- Ten step-out samples were collected to delineate the detection of chlordane above screening levels in the surface soil sample collected on the north side of the residential structure. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs. When the samples were collected in July 2018, the DTSC SL for chlordane was lower and has recently been revised.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the south side of the garage. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Ten step-out samples were collected to delineate the detection of lead above screening levels in the surface soil collected on the north side of the metal barn. Soil samples were collected from five locations from 0.5 feet bgs and from 2.5 feet bgs.

- Six step-out samples were collected to delineate the detection of dieldrin at the screening level in the surface soil collected near the south side of the AST located in the remaining orchard. Soil samples were collected from three locations from 0.5 feet bgs and from 2.5 feet bgs.

The results of the step-out sampling are summarized below:

- Chlordane was below SLs in the soil samples collected on the north side of the residential structure.
- Six other pesticides were detected in surface soil on the north side of the house at concentrations below SLs: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endrin aldehyde, and heptachlor epoxide.
- One pesticide, 4,4'-DDE was detected below SLs in step-out samples collected to delineate the detection of dieldrin in the surface soil collected near the south side of the former AST. Dieldrin was not detected in the step-out samples.
- Lead was analyzed in ten step-out samples to delineate the area south of the garage and on the north side of the metal barn. Lead concentrations ranged from 1.91 mg/kg to 21.4 mg/kg, below the DTSC SL of 80 mg/kg for lead. No detections of lead were above the screening level in the step-out samples collected.
- A screening level risk assessment was conducted for the pesticides detected at the site using the highest reported concentrations and the 95% upper confidence limit (UCL) calculated with ProUCL. The estimated carcinogenic risk using the maximum detected concentrations was 2.9E-06 and using the 95% UCL the estimated carcinogenic risk was 8E-07. The hazard index was below levels of concern using both the maximum concentrations and the 95% UCL concentrations.
- The 95% UCL concentration for lead using ProUCL was 46 mg/kg, below levels of concern.
- Laboratory data obtained were validated to assure that Data Quality Objectives (DQOs) were met and the data were suitable for use in a human health and ecological screening evaluation.

13.1 RECOMMENDATIONS

The results of the PEA support the following conclusions and recommendations:

Based on the PEA objectives, the environmental quality goals of the District, and the results of the PEA investigation, PlaceWorks has determined that no further assessment is required for the site. Therefore, PlaceWorks recommends that the PEA be finalized. Per California Education Code Section 17213.1, Section 3, PlaceWorks concludes that further assessment of the site is not necessary and is requesting an approval of the PEA.

13. Conclusions and Recommendations

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Tables

Tables

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TABLE 1
SAMPLING AND ANALYSIS PROGRAM
Proposed Elementary School Nason Street Site
Moreno Valley Unified School District
Moreno, California

Sample Number	Depth (feet bgs)	Date	Rationale	EPA 8081A OCPs	EPA 6010B Arsenic	EPA 6010B Lead	EPA 8015B TPH
Soil Samples							
B-1	0.5'	7/10/2018	Historic Agriculture	Composite B-1, B-2, B-3, B-4			
	2.5'						
B-2	0.5'	7/10/2018	Historic Agriculture	Composite B-1, B-2, B-3, B-4	D		D
	2.5'						
B-3	0.5'	7/10/2018	Historic Agriculture	Composite B-1, B-2, B-3, B-4			
	2.5'						
B-4	0.5'	7/10/2018	Historic Agriculture	Composite B-1, B-2, B-3, B-4			
	2.5'						
B-5	0.5'	7/10/2018	AST	NA		D	
	2.5'						
	5.0'						D
B-6	0.5'	7/10/2018	Historic Agriculture	Composite B-6, B-12, B-19			
	2.5'						
B-7	0.5'	7/10/2018	Historic Agriculture	Composite B-7, B-8, B-9, B-10			
	2.5'						
B-8	0.5'	7/10/2018	Historic Agriculture	Composite B-7, B-8, B-9, B-10			
	2.5'						
B-9	0.5'	7/10/2018	Historic Agriculture & Windmill	Composite B-7, B-8, B-9, B-10			
	2.5'						
	5.0'						D
B-10	0.5'	7/10/2018	Historic Agriculture & Windmill	Composite B-7, B-8, B-9, B-10	D		D
	2.5'						
	5.0'						D
B-10 DUP	5.0'	7/10/2018	Duplicate				DUP
B-11	0.5'	7/10/2018	Historic Agriculture	Composite B-11, B-15, B-16			
	2.5'						
B-11 DUP	0.5'	7/10/2018	Duplicate	Composite B-11 DUP, B-15 DUP, B-16 DUP			
	2.5'						
B-12	0.5'	7/10/2018	Historic Agriculture	Composite B-6, B-12, B-19			
	2.5'						
B-13	0.5'	7/10/2018	Historic Agriculture	Composite B-13, B-14, B-17, B-18			
	2.5'						
B-14	0.5'	7/10/2018	Historic Agriculture	Composite B-13, B-14, B-17, B-18			
	2.5'						
B-15	0.5'	7/10/2018	Historic Agriculture	Composite B-11, B-15, B-16	D		D
	2.5'						
B-15 DUP	0.5'	7/10/2018	Duplicate	Composite B-11 DUP, B-15 DUP, B-16 DUP	DUP		
	2.5'						
B-16	0.5'	7/10/2018	Historic Agriculture	Composite B-11, B-15, B-16			
	2.5'						
B-16 DUP	0.5'	7/10/2018	Duplicate	Composite B-11 DUP, B-15 DUP, B-16 DUP			
	2.5'						
B-17	0.5'	7/10/2018	Historic Agriculture	Composite B-13, B-14, B-17, B-18			
	2.5'						
B-18	0.5'	7/10/2018	Historic Agriculture	Composite B-13, B-14, B-17, B-18	D		D
	2.5'						

TABLE 1
SAMPLING AND ANALYSIS PROGRAM
Proposed Elementary School Nason Street Site
Moreno Valley Unified School District
Moreno, California

Sample Number	Depth (feet bgs)	Date	Rationale	EPA 8081A OCPs	EPA 6010B Arsenic	EPA 6010B Lead	EPA 8015B TPH
B-19	0.5'	7/10/2018	Historic Agriculture & AST	Composite B-6, B-12, B-19	D		D
	2.5'						
	5.0'						D
B-20	0.5'	7/10/2018	Structure	Composite B-20, B-21, B-22, B-23		D	
	2.5'			Composite B-20, B-21, B-22, B-23			
B-21	0.5'	7/10/2018	Structure	Composite B-20, B-21, B-22, B-23		D	
	2.5'			Composite B-20, B-21, B-22, B-23			
B-22	0.5'	7/10/2018	Structure	Composite B-20, B-21, B-22, B-23			
	2.5'			Composite B-20, B-21, B-22, B-23			
B-23	0.5'	7/10/2018	Structure	Composite B-20, B-21, B-22, B-23		D	
	2.5'			Composite B-20, B-21, B-22, B-23			
B-24	0.5'	7/10/2018	Structure			D	
	2.5'						
B-25	0.5'	7/10/2018	Structure	Composite B-25, B-27, B-28, B-29		D	
	2.5'			Composite B-25, B-27, B-28, B-29			
B-25 DUP	0.5'	7/10/2018	Duplicate	Composite B-25 DUP, B-27 DUP, B-28 DUP, B-29 DUP		DUP	
	2.5'						
B-26	0.5'	7/10/2018	Structure			D	
	2.5'						
B-27	0.5'	7/10/2018	Structure	Composite B-25, B-27, B-28, B-29		D	
	2.5'			Composite B-25, B-27, B-28, B-29			
B-27 DUP	0.5'	7/10/2018	Duplicate	Composite B-25 DUP, B-27 DUP, B-28 DUP, B-29 DUP		DUP	
	2.5'						
B-28	0.5'	7/10/2018	Structure	Composite B-25, B-27, B-28, B-29		D	
	2.5'			Composite B-25, B-27, B-28, B-29			
B-28 DUP	0.5'	7/10/2018	Duplicate	Composite B-25 DUP, B-27 DUP, B-28 DUP, B-29 DUP			
	2.5'						
B-29	0.5'	7/10/2018	Structure	Composite B-25, B-27, B-28, B-29		D	
	2.5'			Composite B-25, B-27, B-28, B-29		D	
B-29 DUP	0.5'	7/10/2018	Duplicate	Composite B-25 DUP, B-27 DUP, B-28 DUP, B-29 DUP		DUP	
	2.5'						
B-30	0.5'	7/10/2018	Metal Structure			D	
	2.5'					D	
B-31	0.5'	7/10/2018	Metal Structure			D	
	2.5'						
B-32	0.5'	7/10/2018	Metal Structure			D	
	2.5'						
Total				9 C, 2 C DUPS	5 D, 1 DUP	15 D, 3 DUPs	9 D,1 DUP

Note:
AST = aboveground storage tank; OCPs = organochlorine pesticides
TPH = total petroleum hydrocarbons
D=Discrete; C=Composite; DUP=Duplicate
NA= Not available

TABLE 2
STEP-OUT SAMPLING AND ANALYSIS PROGRAM
Proposed Elementary School Nason Street Site
Moreno Valley Unified School District
Moreno, California

Sample Number	Depth (feet bgs)	Rationale	EPA 8081A OCPs	EPA 6010B Lead
Soil Samples				
B-19a	0.5'	Step-Out Orchard	D	
	2.5'		-	
B-19b	0.5'	Step-Out Orchard	D	
	2.5'		-	
B-19c	0.5'	Step-Out Orchard	D	
	2.5'		-	
B-20a	0.5'	Step-Out Residential Structure	D	
	2.5'		-	
B-20b	0.5'	Step-Out Residential Structure	D	
	2.5'		-	
B-20b DUP	0.5'	Step-Out Residential Structure	DUP	
	2.5'		-	
B-20c	0.5'	Step-Out Residential Structure	D	
	2.5'		-	
B-20d	0.5'	Step-Out Residential Structure	D	
	2.5'		-	
B-20e	0.5'	Step-Out Residential Structure	D	
	2.5'		-	
B-29a	0.5'	Step-Out Garage		D
	2.5'			-
B-29a DUP	0.5'	Step-Out Garage		DUP
	2.5'			-
B-29b	0.5'	Step-Out Garage		D
	2.5'			-
B-29c	0.5'	Step-Out Garage		D
	2.5'			-
B-29d	0.5'	Step-Out Garage		D
	2.5'			-
B-29e	0.5'	Step-Out Garage		D
	2.5'			-
B-30a	0.5'	Step-Out Metal Structure		D
	2.5'			-
B-30b	0.5'	Step-Out Metal Structure		D
	2.5'			-
B-30c	0.5'	Step-Out Metal Structure		D
	2.5'			-
B-30d	0.5'	Step-Out Metal Structure		D
	2.5'			-
B-30e	0.5'	Step-Out Metal Structure		D
	2.5'			-
Total			8D, 1 DUP	10 D, 1 DUP

Note:
OCPs = organochlorine pesticides
D=Discrete; DUP=Duplicate

TABLE 3
SUMMARY TABLE OF ORGANOCHLORINE PESTICIDES IN SOIL
Proposed Elementary School Nason Street Site
Moreno Valley Unified School District
Moreno, California

			Concentration (milligrams per kilogram [mg/kg])						
Sample Number	**Depth (feet bgs)**	**Sample Date**	**4,4´-DDD**	**4,4´-DDE**	**4,4´-DDT**	**Chlordane**	**Dieldrin**	**Endrin Aldehyde***	**Heptachlor Epoxide**
Composite B-1, B-2, B-3, B-4	0.5'	7/10/2018	<0.0020	0.07	0.05	0.023	0.0081	0.016	<0.0020
Composite B-6, B-12, B-19	0.5'	7/10/2018	<0.0020	0.3	0.34	<0.010	0.033	<0.0020	<0.0020
B-6	0.5'	7/10/2018	<0.0020	0.26	0.075	<0.010	0.0079	<0.0020	<0.0020
	2.5'		<0.0020	0.0038	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
Composite B-7, B-8, B-9, B-10	0.5'	7/10/2018	<0.0020	0.06	0.088	<0.010	0.017	0.023	<0.0020
B-7	0.5'	7/10/2018	<0.0020	0.033	0.015	<0.010	0.0034	0.0063	<0.0020
B-8	0.5'	7/10/2018	<0.0020	0.17	0.074	<0.010	0.01	0.015	<0.0020
B-9	0.5'	7/10/2018	<0.0020	0.043	0.048	<0.010	0.03	0.039	<0.0020
B-10	0.5'	7/10/2018	<0.0020	0.066	0.033	<0.010	0.018	0.015	<0.0020
B-12	0.5'	7/10/2018	<0.0020	0.36	0.11	<0.010	0.018	<0.0020	<0.0020
	2.5'		<0.0020	<0.0020	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
Composite B-11, B-15, B-16	0.5'	7/10/2018	<0.0020	0.22	0.13	<0.010	0.015	<0.0020	<0.0020
Composite B-11, B-15, B-16 DUP	0.5'	7/10/2018	<0.0020	0.28	0.13	<0.010	0.009	<0.0020	<0.0020
Composite B-13, B-14, B-17, B-18	0.5'	7/10/2018	<0.0020	0.078	0.025	<0.010	0.01	<0.0020	<0.0020
B-19	0.5'	7/10/2018	<0.010	0.31	0.44	<0.050	0.044	<0.010	<0.0020
	2.5'		<0.0020	<0.0020	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
B-19a	0.5'	3/29/2019	<0.0020	0.0043	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
B-19b	0.5'	3/29/2019	<0.0020	0.0063	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
B-19c	0.5'	3/29/2019	<0.0020	0.0073	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
Composite B-20, B-21, B-22, B-23	0.5'	7/10/2018	<0.0020	0.08	0.063	0.16	0.011	<0.0020	<0.0020
	2.5'		0.03	0.0043	<0.0020	0.032	<0.0020	<0.0020	<0.0020
B-20	0.5'	7/10/2018	<0.0020	0.049	0.05	0.68	0.013	<0.0020	<0.0020
B-20a	0.5'	3/29/2019	0.0067	0.009	0.0063	0.027	0.0023	<0.0020	0.005
B-20b	0.5'	3/29/2019	<0.0020	0.3	0.033	0.24	<0.0020	<0.0020	0.032
B-20c	0.5'	3/29/2019	<0.0020	0.0046	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
B-20C DUP	0.5'	3/29/2019	<0.0020	0.0031	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
B-20d	0.5'	3/29/2019	0.0048	0.16	0.027	0.99	<0.0020	0.0076	0.044
B-20e	0.5'	3/29/2019	<0.0020	0.0028	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
B-21	0.5'	7/10/2018	<0.0020	0.047	0.033	0.12	0.0068	<0.0020	<0.0020
B-22	0.5'	7/10/2018	<0.0020	0.15	0.039	0.032	0.01	<0.0020	<0.0020
B-23	0.5'	7/10/2018	<0.0020	0.038	0.01	0.13	0.0042	<0.0020	<0.0020
Composite B-25, B-27, B-28, B-29	0.5'	7/10/2018	<0.0020	0.091	0.1	0.046	0.0094	<0.0020	<0.0020
	2.5'		<0.0020	0.0045	<0.0020	<0.010	<0.0020	<0.0020	<0.0020
Composite B-25, B-27, B-28, B-29 DUP	0.5'	7/10/2018	<0.0020	0.09	0.12	0.042	0.008	<0.0020	<0.0020
EQUIPMENT BLANK									
			Concentration (milligram per liter [mg/L])						
EB071018			<0.050	<0.050	<0.050	<0.50	<0.02	<0.1	<0.50
EB032919			<0.050	<0.050	<0.050	<0.50	<0.02	<0.1	<0.50
Maximum Concentration Detected			0.03	0.36	0.44	0.99	0.044	0.039	0.044
95% UCL ProUCL			ND	0.18	0.135	0.186	0.0118	0.0291	0.009
EPA Region 9 RSLs			1.9	2	1.9	1.7	0.034	19	0.07
EPA Region 9 RSLs for 3:1 Composite			0.63	0.67	0.63	0.57	0.011	6.33	
EPA Region 9 RSLs for 4:1 Composite			0.48	0.50	0.48	0.43	0.009	4.75	

Notes:
Samples analyzed by EPA Method 8081A
< - Non detect at the established method detection limit.
* Screening level for endrin aldehyde was developed for endrin
A highlighted cell indicates levels are elevated above agency screening levels
EPA= Environmental Protection Agency, RSL= Regional Screening Levels
EPA Region 9 Regional Screeening Level November 2018 Residential soil in mg/kg
The complete laboratory analytical reports are included in Appendix E.
95% UCL = 95% Upper Confidence Limit

TABLE 4
SUMMARY TABLE OF TPH IN SOIL
Proposed Elementary School Nason Street Site
Moreno Valley Unified School District
Moreno, California

			Concentration (milligram per kilogram [mg/kg])		
Sample Number	**Sample Depth**	**Sample Date**	**C4-C12**	**C13-C22**	**C23-C40**
B-2	0.5'	7/10/2018	<0.2	<10	<20
B-5	5.0'	7/10/2018	<0.2	37	20
B-9	5.0'	7/10/2018	<0.2	<10	<20
B-10	0.5'	7/10/2018	<0.2	<10	<20
	5.0'		<0.2	<10	<20
B-10 DUP	5.0'	7/10/2018	<0.2	<10	<20
B-15	0.5'	7/10/2018	<0.2	<10	<20
B-18	0.5'	7/10/2018	<0.2	<10	<20
B-19	0.5'	7/10/2018	<0.2	<10	<20
	5.0'		<0.2	<10	<20
EQUIPMENT BLANK					
Concentration (milligram per liter [mg/L])					
EB071018	NA	7/13/2018	<50	<0.40	<0.80

Notes:

< - Non detect at the established method detection limit.

Samples analyzed by EPA Method 8015 B

The complete laboratory analytical reports are included in Appendix E.

TABLE 5
SUMMARY TABLE OF ARSENIC AND LEAD IN SOIL
Proposed Elementary School Nason Street Site
Moreno Valley Unified School District
Moreno, California

Concentration (milligrams per kilogram [mg/kg])				
Sample Number	**Sample Depth**	**Sample Date**	**Arsenic**	**Lead**
B-2	0.5'	7/10/2018	<1.00	NA
B-5	0.5'	7/10/2018	NA	0.25
B-10	0.5'	7/10/2018	<1.00	NA
B-15	0.5'	7/10/2018	<1.00	NA
B-15 DUP	0.5'	7/10/2018	<1.00	NA
B-18	0.5'	7/10/2018	<1.00	NA
B-19	0.5'	7/10/2018	<1.00	NA
B-20	0.5'	7/10/2018	NA	7.63
B-21	0.5'	7/10/2018	NA	11
B-23	0.5'	7/10/2018	NA	29.2
B-24	0.5'	7/10/2018	NA	18.9
B-25	0.5'	7/10/2018	NA	25.7
B-25 DUP	0.5'	7/10/2018	NA	29.1
B-26	0.5'	7/10/2018	NA	49.4
B-27	0.5'	7/10/2018	NA	30.2
B-27 DUP	0.5'	7/10/2018	NA	9.84
B-28	0.5'	7/10/2018	NA	47.3
B-29	0.5'	7/10/2018	NA	121
	2.5'		NA	2.89
B-29 DUP	0.5'	7/10/2018	NA	120
B-29a	0.5'	3/29/2019	NA	2.64
B-29a DUP	0.5'	3/29/2019	NA	3.26
B-29b	0.5'	3/29/2019	NA	9.31
B-29c	0.5'	3/29/2019	NA	1.91
B-29d	0.5'	3/29/2019	NA	21.4
B-29e	0.5'	3/29/2019	NA	2.14
B-30	0.5'	7/10/2018	NA	214
	2.5'		NA	2.41
B-30a	0.5'	3/29/2019	NA	15.3
B-30b	0.5'	3/29/2019	NA	4.47
B-30c	0.5'	3/29/2019	NA	1.94
B-30d	0.5'	3/29/2019	NA	2.06
B-30e	0.5'	3/29/2019	NA	3.12
B-31	0.5'	7/10/2018	NA	26.2
B-32	0.5'	7/10/2018	NA	13.8
EQUIPMENT BLANK				
Concentration (milligram per liter [mg/L])				
EB071018	NA	7/13/2018	<0.02	<0.02
EB032919	NA	3/29/2019	NA	<0.01
Number of Samples				29
Number of Detects				29
Maximum				214
95% UCL ProUCL				46
DTSC SLs			12	80

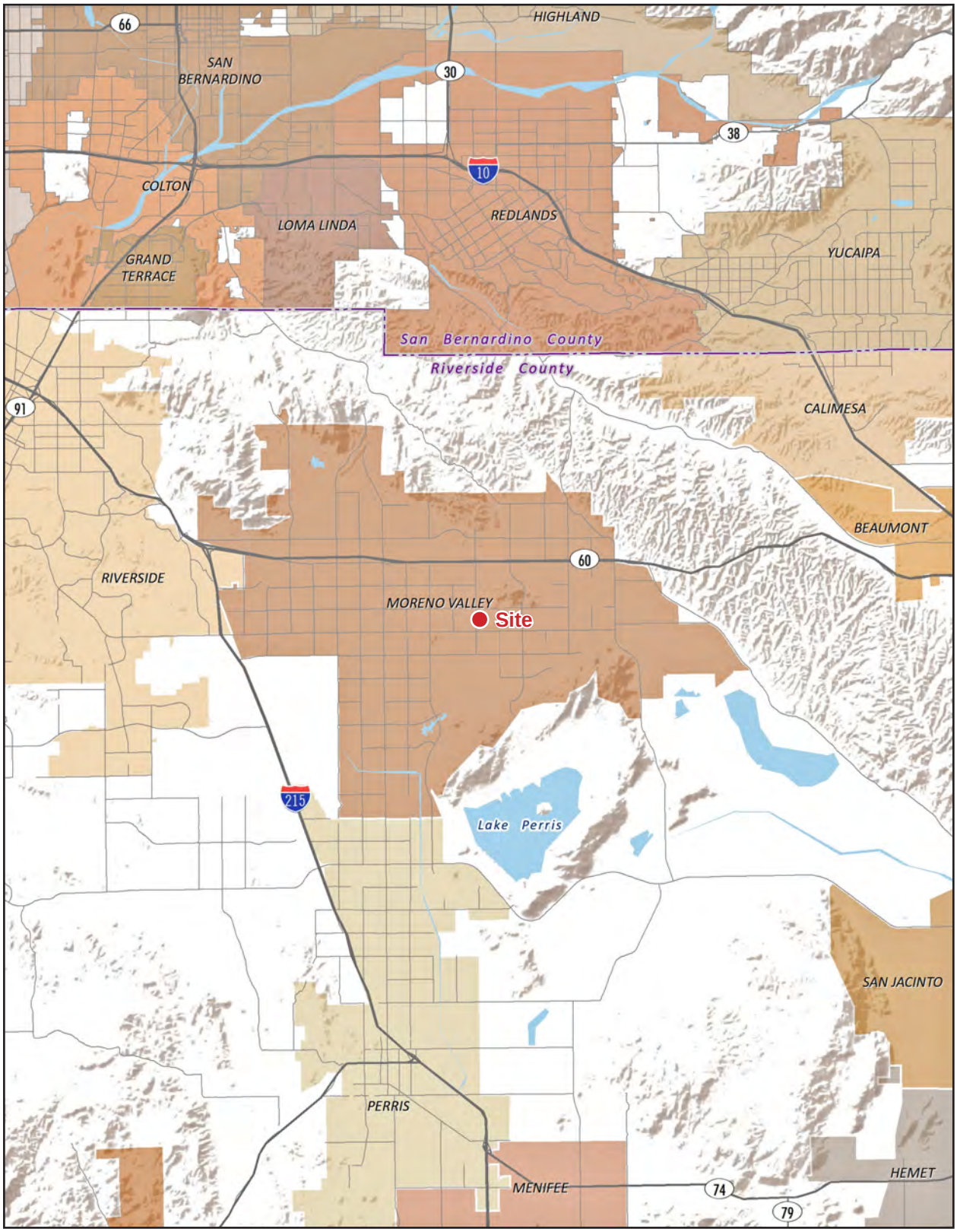
Notes:
< - Non detect at the established method detection limit.
DTSC= Department of Toxic Substances Control, SLs= Screening Levels
The complete laboratory analytical reports are included in Appendix E.
Highlighted cells indicate concentrations above agency screening levels.

Figures

Figures

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Figure 1 - Regional Location

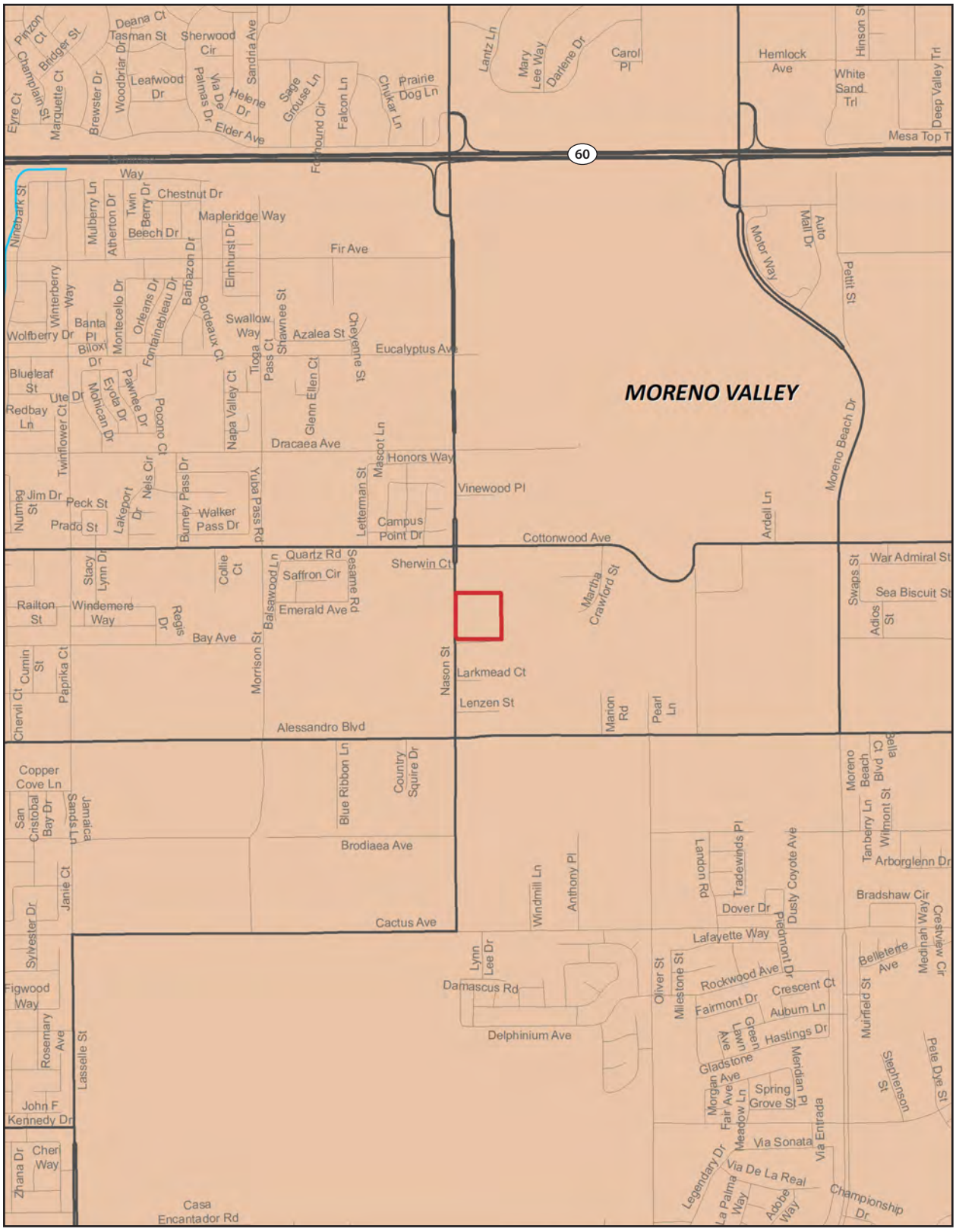


Note: Unincorporated county areas are shown in white.

0 3
Scale (Miles)

Source: ESRI, 2018

Figure 2 - Local Vicinity



Source: ESRI, 2018

Figure 3 - Aerial Photograph
1. Introduction



Project Boundary

0 200
Scale (Feet)

Source: ESRI, 2018

Figure 4 - Sampling Locations



Project Boundary

B-2 Sample Locations

0 100
Scale (Feet)

Source: Google Earth Pro, 2018

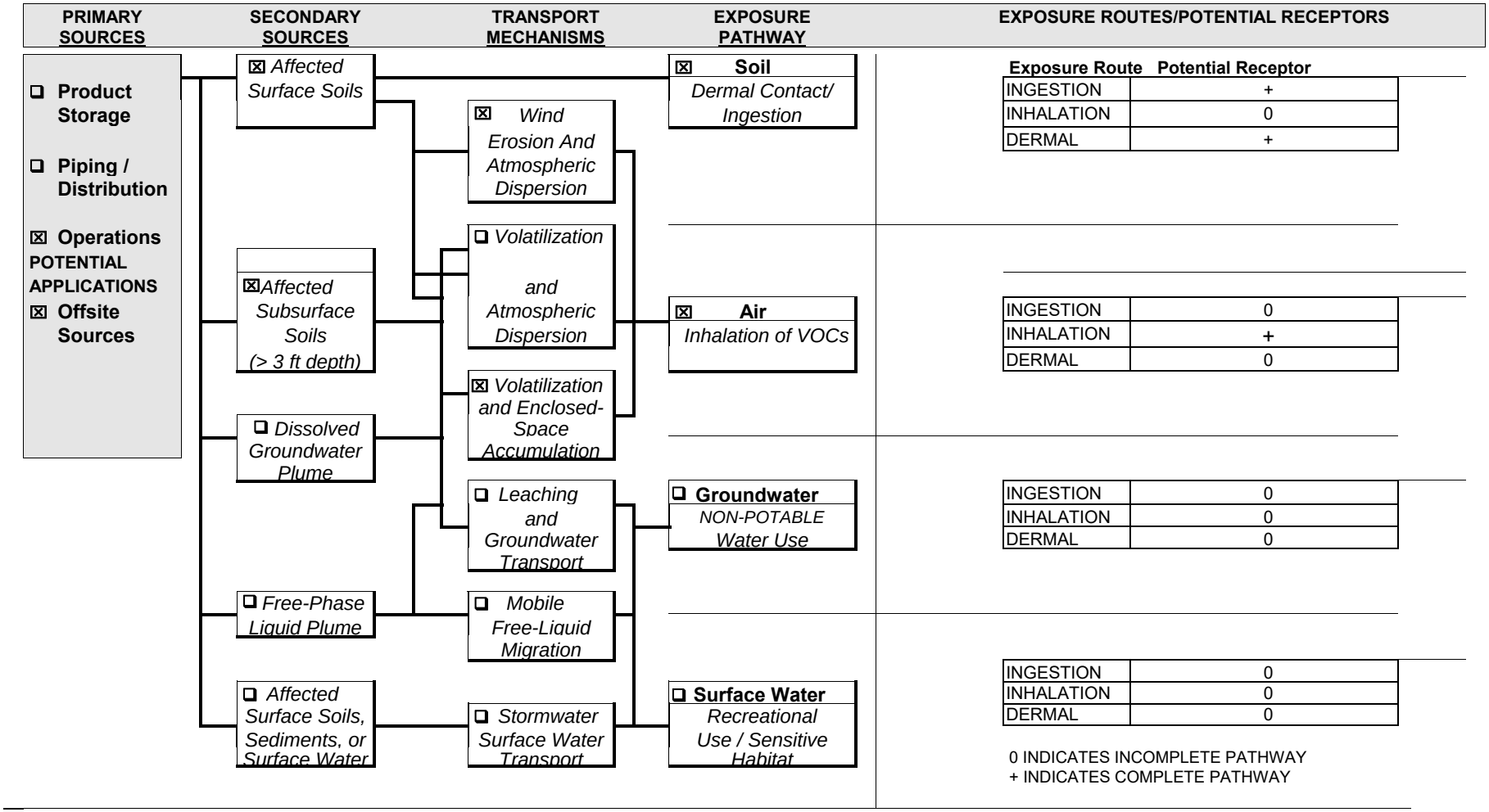
Figure 5 - Residential Area and Step-Out Locations



Source: Google Earth Pro, 2018

FIGURE 6 CONCEPTUAL SITE MODEL

Proposed Moreno Valley Elementary School – Nason Street
Moreno Valley Unified School District
Moreno Valley, California



Appendix A. Site Photographs

Appendix

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Appendix B. Research Documentation

Appendix

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Proposed Moreno Valley Elementary School Nason St

13636 Nason Street

Moreno Valley, CA 92555

Inquiry Number: 5361337.8

July 17, 2018

The EDR Aerial Photo Decade Package

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Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

07/17/18

Site Name:

Proposed Moreno Valley Eleme
13636 Nason Street
Moreno Valley, CA 92555
EDR Inquiry # 5361337.8

Client Name:

PlaceWorks
3 MacArthur Place Suite 1100
Santa Ana, CA 92707
Contact: Denise Clendening

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Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2002	1"=500'	Acquisition Date: May 22, 2002	USGS/DOQQ
1997	1"=500'	Flight Date: October 16, 1997	USGS
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: July 28, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1967	1"=500'	Flight Date: May 15, 1967	USDA
1953	1"=500'	Flight Date: August 28, 1953	USDA
1949	1"=500'	Flight Date: May 08, 1949	USDA
1938	1"=500'	Flight Date: June 14, 1938	USDA

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INQUIRY #: 5361337.8
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 5361337.8
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 5361337.8
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 5361337.8
YEAR: 2006
= 500'
N
EDR



INQUIRY #: 5361337.8

YEAR: 2002

= 500'

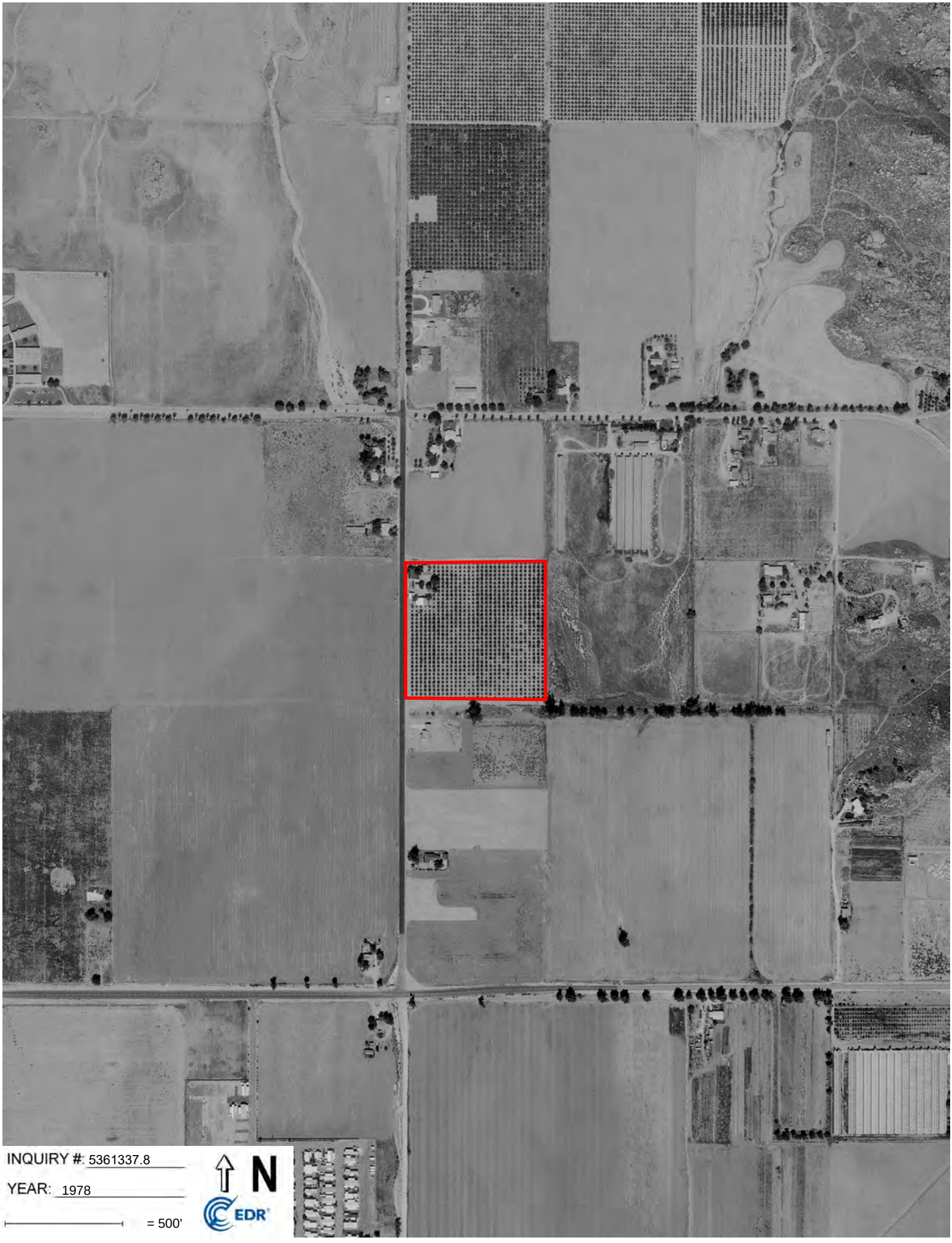
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EDR


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YEAR: 1997
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EDR


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EDR


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YEAR: 1985
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EDR


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YEAR: 1978
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EDR


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YEAR: 1967
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INQUIRY #: 5361337.8
YEAR: 1949
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EDR


INQUIRY #: 5361337.8
YEAR: 1938
= 500'
N
EDR

Proposed Moreno Valley Elementary School Nason St

13636 Nason Street

Moreno Valley, CA 92555

Inquiry Number: 5361337.4

July 13, 2018

EDR Historical Topo Map Report

with QuadMatch™

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Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

07/13/18

Site Name:	Client Name:
Proposed Moreno Valley Eleme	PlaceWorks
13636 Nason Street	3 MacArthur Place Suite 1100
Moreno Valley, CA 92555	Santa Ana, CA 92707
EDR Inquiry # 5361337.4	Contact: Denise Clendening

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Search Results:		*Coordinates:*	
P.O.#	MORE-33.0	**Latitude:**	33.921945 33° 55' 19" North
Project:	Proposed MVUSD ES-Nason	**Longitude:**	-117.190377 -117° 11' 25" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	482403.02
		UTM Y Meters:	3753517.76
		Elevation:	1623.07' above sea level

Maps Provided:

2012
1980
1973
1967
1953
1943
1942
1901

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Sunnymead
2012
7.5-minute, 24000

1980 Source Sheets



Sunnymead
1980
7.5-minute, 24000
Aerial Photo Revised 1978

1973 Source Sheets



Sunnymead
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1967 Source Sheets



Sunnymead
1967
7.5-minute, 24000
Aerial Photo Revised 1966

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1953 Source Sheets



Sunnymead
1953
7.5-minute, 24000
Aerial Photo Revised 1951

1943 Source Sheets



PERRIS
1943
15-minute, 62500

1942 Source Sheets



Perris
1942
15-minute, 62500
Aerial Photo Revised 1939

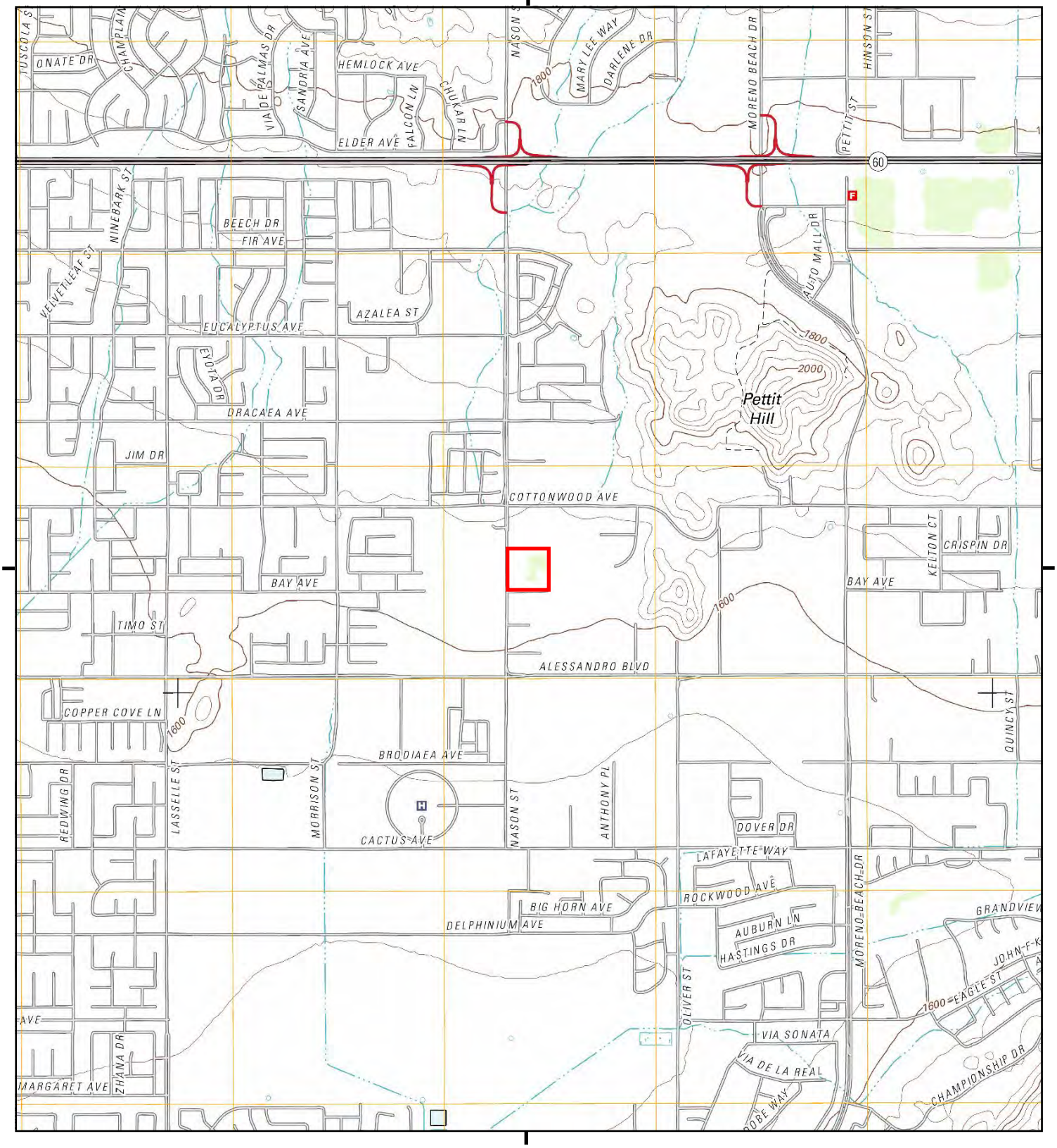
1901 Source Sheets



Elsinore
1901
30-minute, 125000

Historical Topo Map

2012



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W E
SW S SE

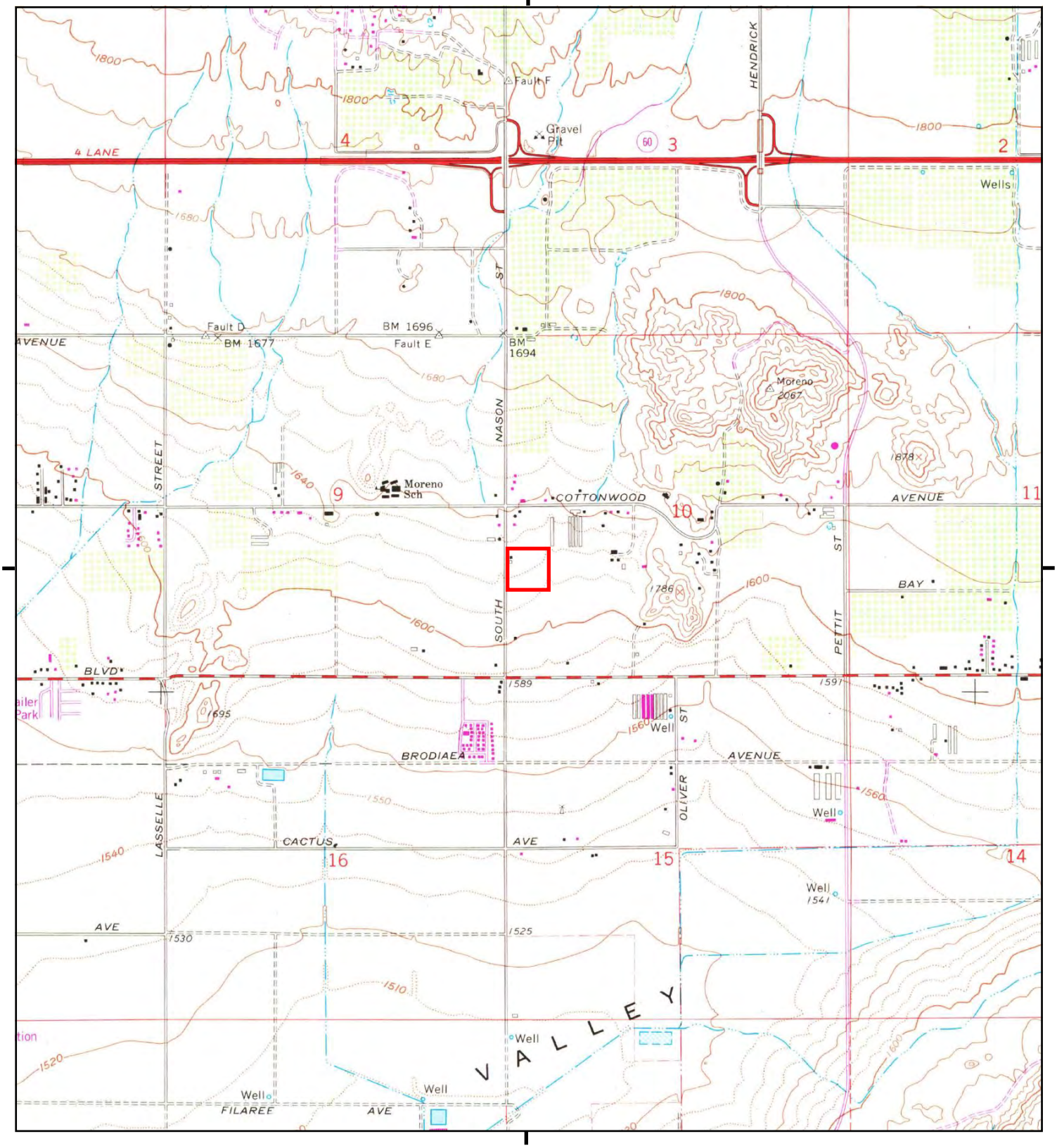
TP, Sunnymead, 2012, 7.5-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N

Historical Topo Map

1980



This report includes information from the following map sheet(s).

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SW S SE

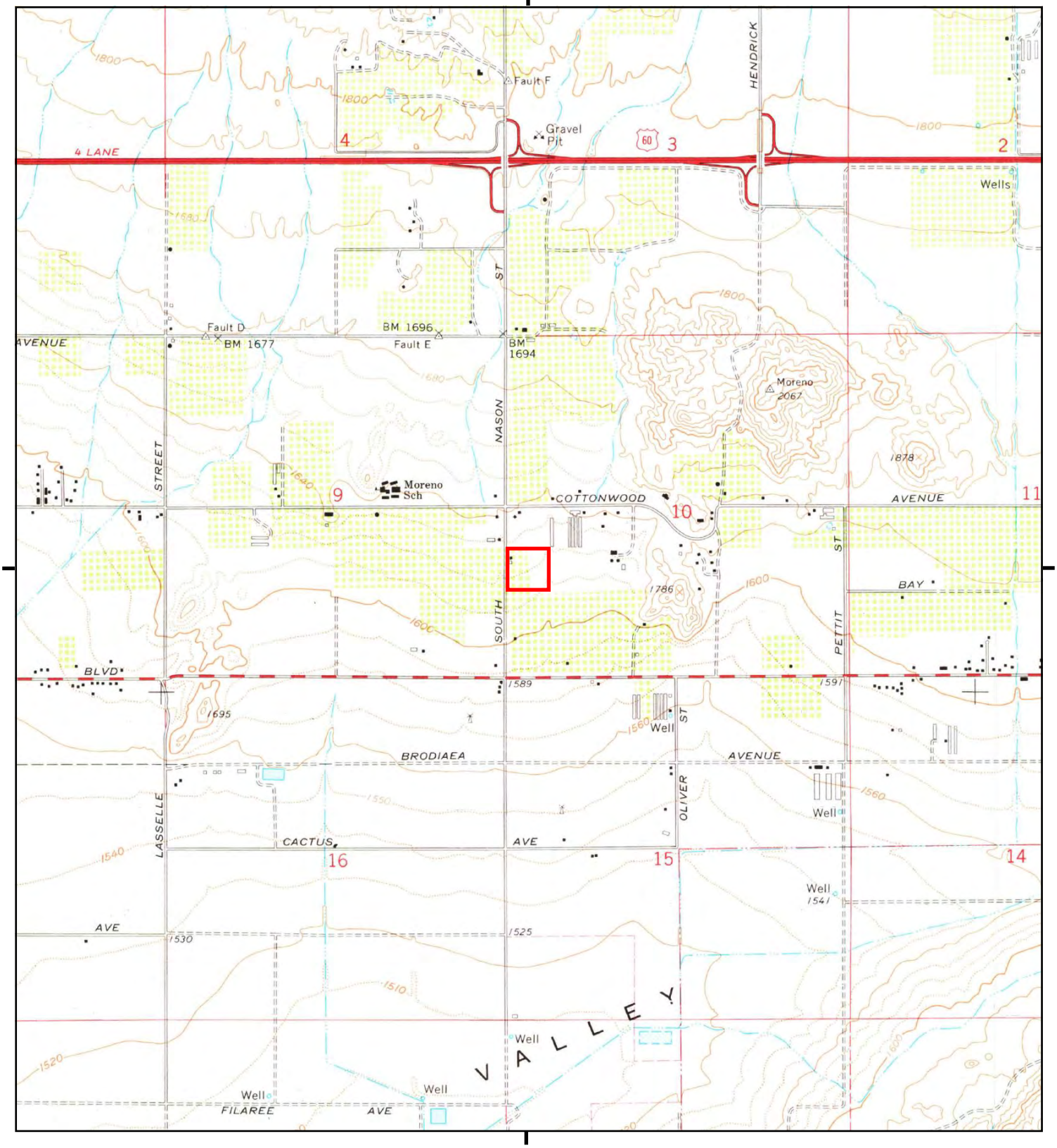
TP, Sunnymead, 1980, 7.5-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
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CLIENT: PlaceWorks

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Historical Topo Map

1973



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SW S SE

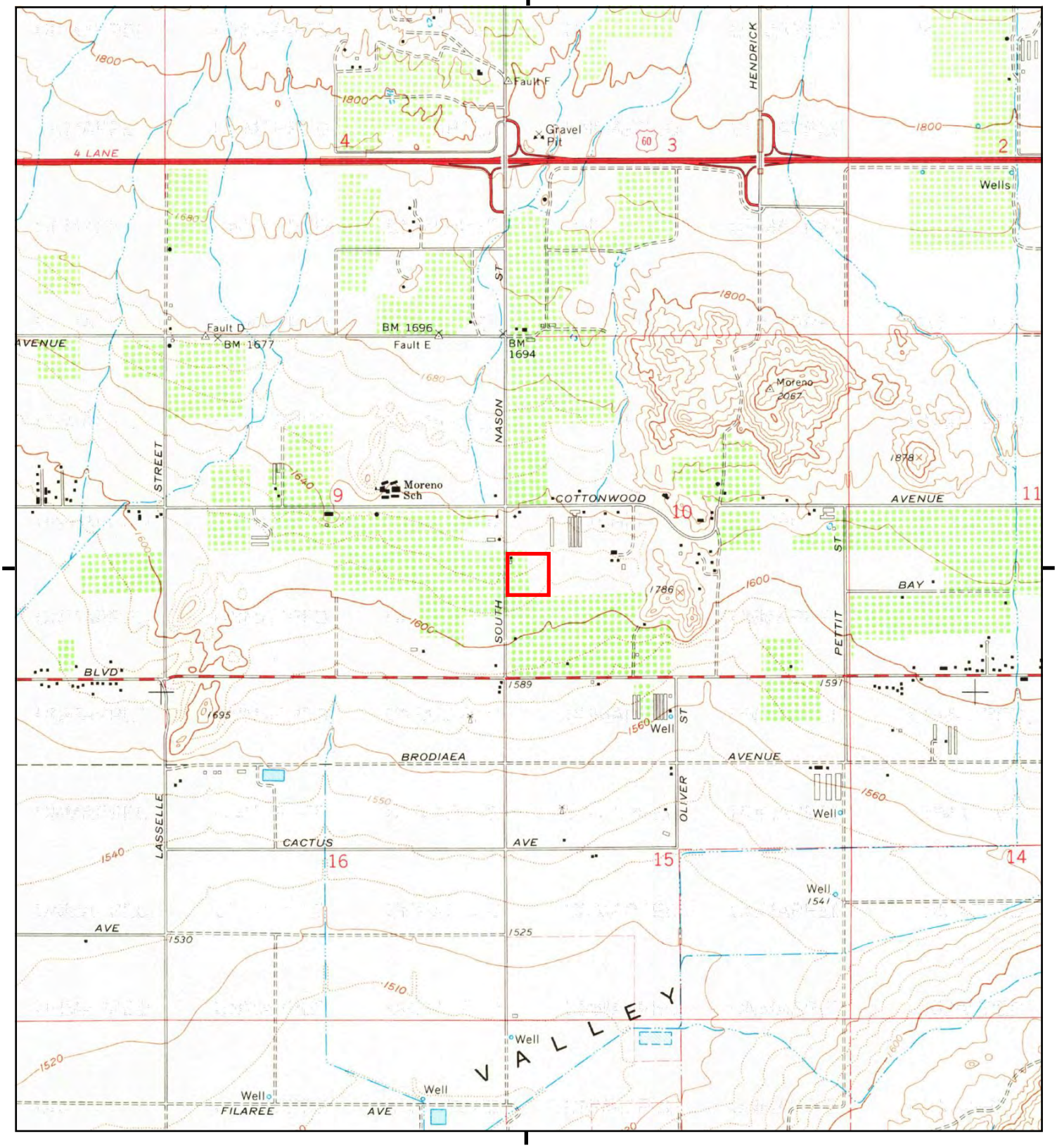
TP, Sunnymead, 1973, 7.5-minute

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ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N

Historical Topo Map

1967



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

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W E
SW S SE

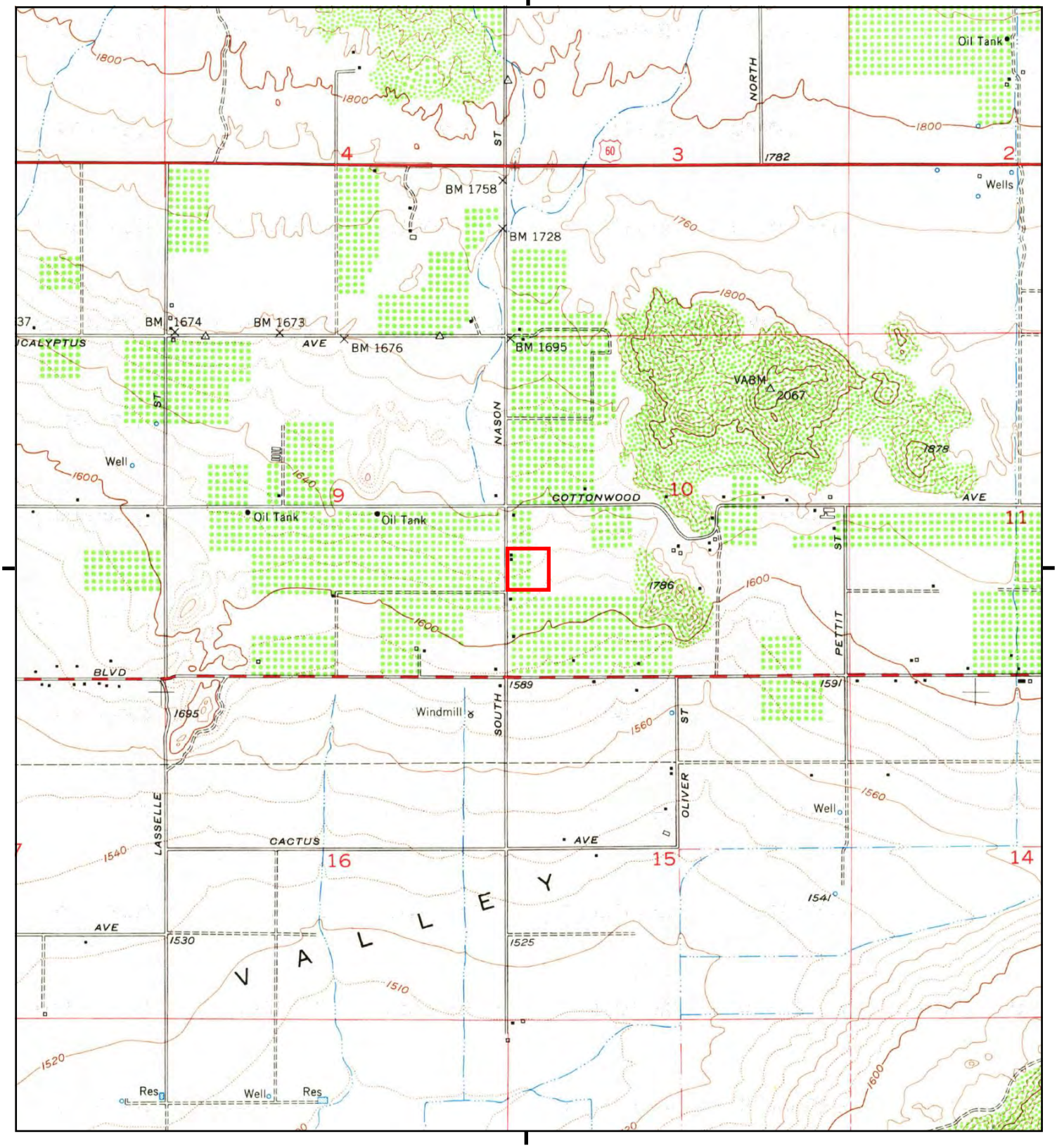
TP, Sunnymead, 1967, 7.5-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N

Historical Topo Map

1953



This report includes information from the following map sheet(s).

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SW S SE

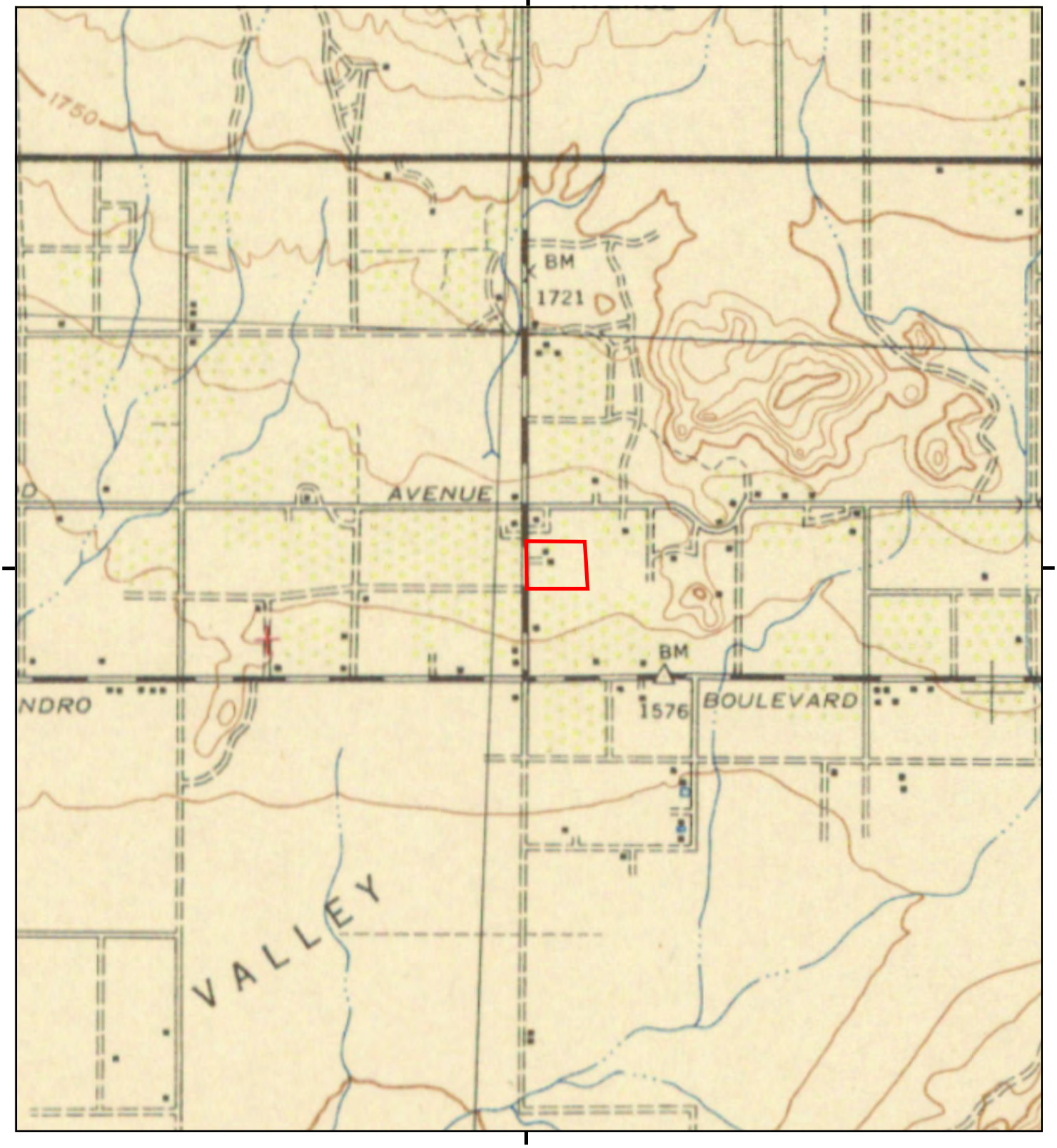
TP, Sunnymead, 1953, 7.5-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N

Historical Topo Map

1943



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W E
SW S SE

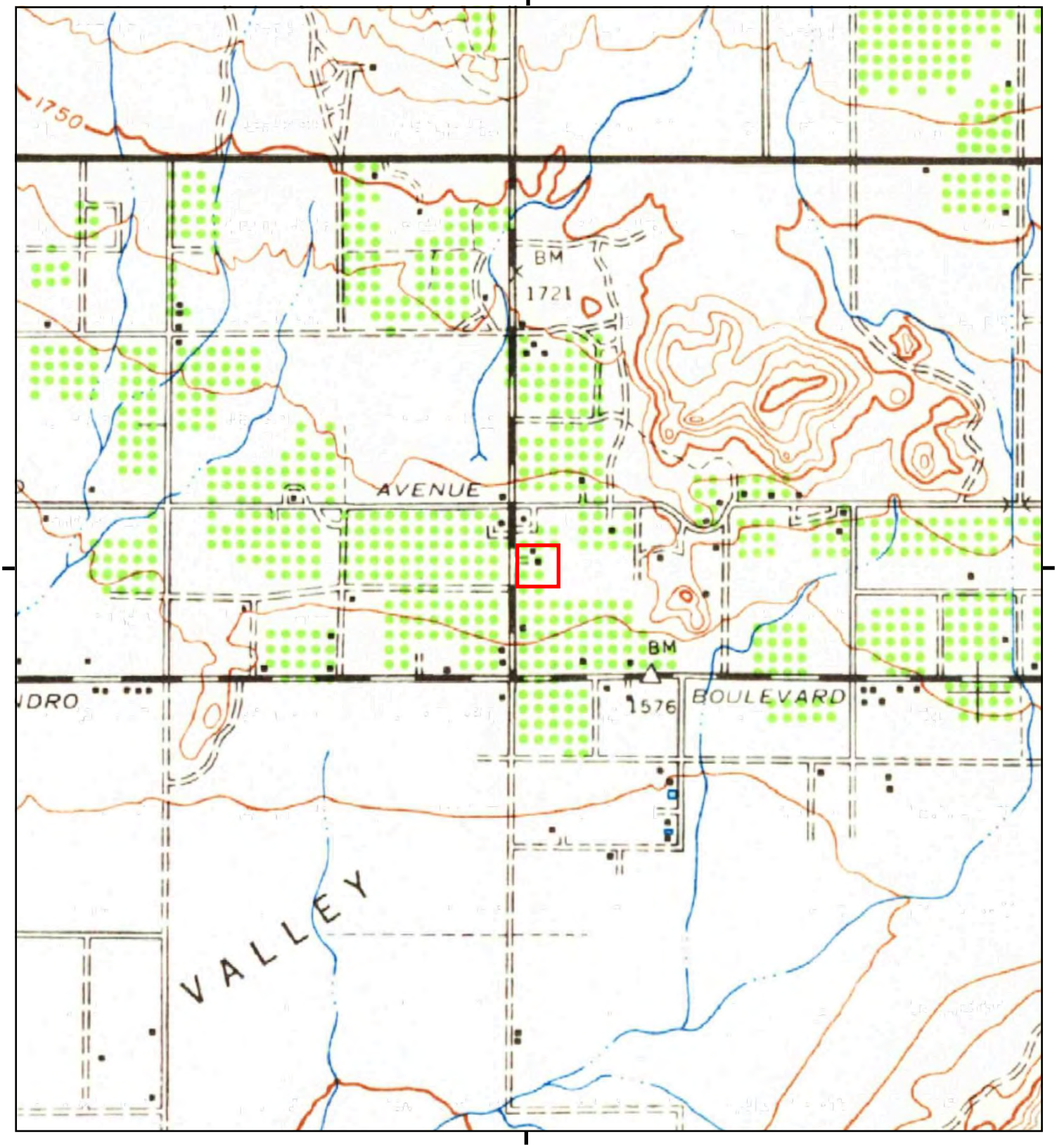
TP, PERRIS, 1943, 15-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N

Historical Topo Map

1942



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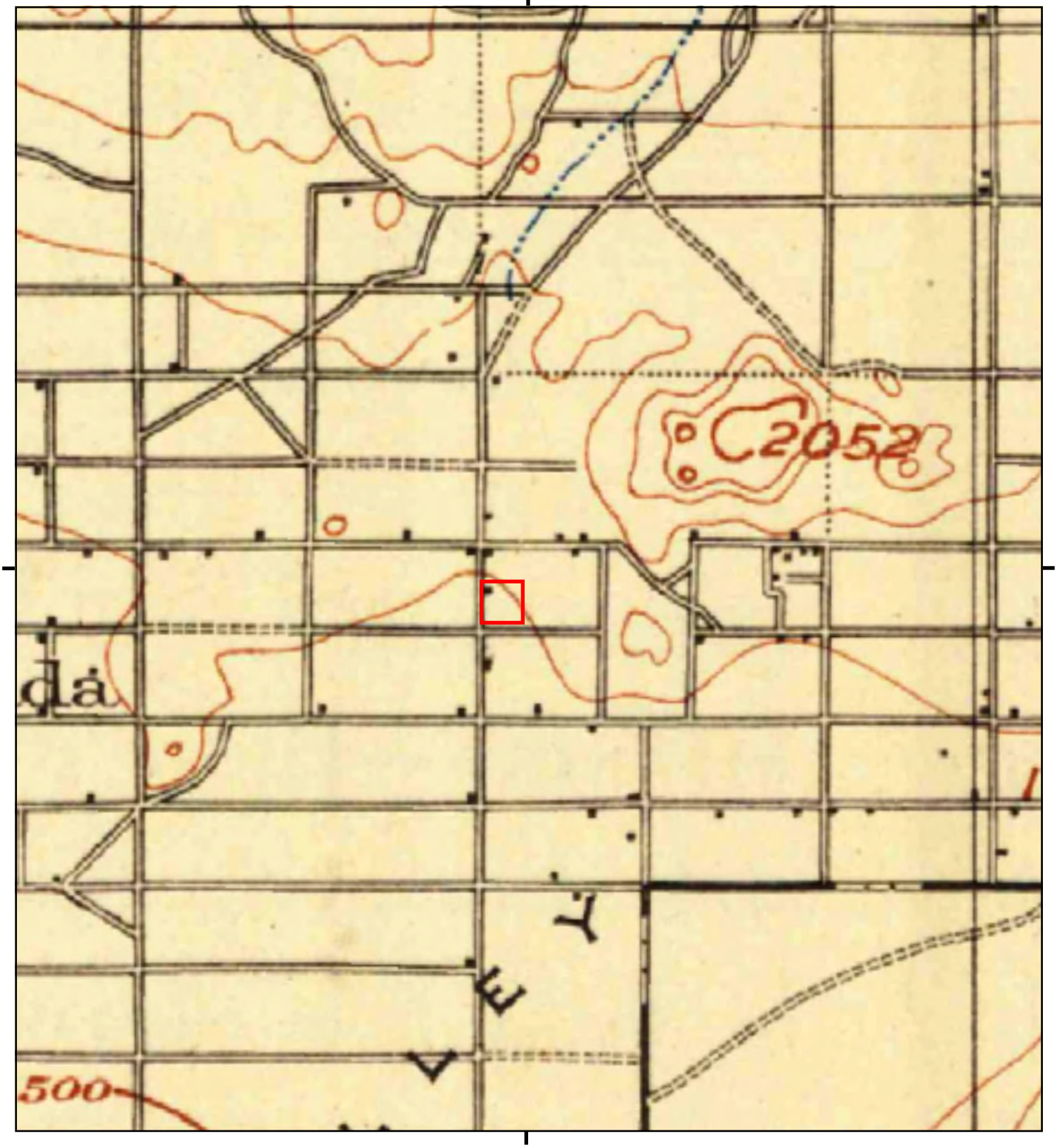
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Perris, 1942, 15-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1901, 30-minute

SITE NAME: Proposed Moreno Valley Elementary Sch
ADDRESS: 13636 Nason Street
Moreno Valley, CA 92555
CLIENT: PlaceWorks

N

Proposed Moreno Valley Elementary School Nason St

13636 Nason Street

Moreno Valley, CA 92555

Inquiry Number: 5361337.3

July 13, 2018

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07/13/18

Site Name:

Proposed Moreno Valley Eleme
13636 Nason Street
Moreno Valley, CA 92555
EDR Inquiry # 5361337.3

Client Name:

PlaceWorks
3 MacArthur Place Suite 1100
Santa Ana, CA 92707
Contact: Denise Clendening

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Certification # DA6F-4708-9270

PO # MORE-33.0

Project Proposed MVUSD ES-Nason

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Sanborn® Library search results

Certification #: DA6F-4708-9270

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- ☑ Library of Congress
- ☑ University Publications of America
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Proposed Moreno Valley Elementary School Nason St
13636 Nason Street
Moreno Valley, CA 92555

Inquiry Number: 5361337.5
July 17, 2018

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
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TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

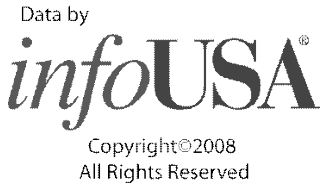
DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1975	☑	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

13636 Nason Street
Moreno Valley, CA 92555

Year	*CD Image*	*Source*
NASON ST		
2014	pg A1	EDR Digital Archive
2010	pg A2	EDR Digital Archive
2005	pg A3	EDR Digital Archive
2000	pg A4	EDR Digital Archive
1995	pg A5	EDR Digital Archive
1992	pg A6	EDR Digital Archive
1985	pg A7	Haines Criss-Cross Directory
1980	pg A8	Haines Criss-Cross Directory
1975	pg A9	Haines Criss-Cross Directory

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NASON ST 2014

12201 LANTZ C W PIONEER GROVES
OCCUPANT UNKNOWN,
13135 MORENO VALLEY UNIFIED SCHL DST
13256 GUVEN, ERTUGRUL B
13290 LEMUS, ELENA
13310 ROMERO, NANCY J
13380 OBANION, KIM N
13394 HOLMVIG & ASSOC
HOLMVIG, DEWITT P
13430 OLIVER, JAY D
13486 CROLL, JAMES L
13535 OLIVE BRANCH MINISTRIES
STUDENT, PAUL M
13597 GARCIA, ARMANDO
13600 LORD OF LIFE LUTHERAN CHURCH
13636 OCCUPANT UNKNOWN,
13760 VARGAS, ALFONSO R
13830 MORENO CHRISTIAN ASSEMBLY INC
SA HA LE LODGE INC
13860 YZAGUIRRE, PATRICIA
13890 BAHLS, LAURENCE
SOUTHWEST BIBLE COLLEGE
13920 BUDDHADHAMMO TEMPLE
POOLSRI, NASON
13980 GUTIERREZ, ISAAC
14265 RADCLIFFE, GORDON E
14295 CANIZALES, RUTH

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NASON ST 2010

12201 LANTZ C W PIONEER GROVES
OCCUPANT UNKNOWN,
13135 MORENO VALLEY UNIFIED SCHL DST
R O P FLORAL CLASSROOM
13256 OCCUPANT UNKNOWN,
13290 A&M TREE SERVICE
A&R LANDSCAPING
SANDOVAL, AMADO
13310 OCCUPANT UNKNOWN,
13380 CARUSO, MARY E
13394 DESERT ROCK PROPERTY MGT LLC
HOLMVIG & ASSOC
HOLMVIG, DEWITT P
13430 OLIVER, JAY D
13486 CROLL, JAMES L
13535 CASILLAS, JERRY J
OLIVE BRANCH MINISTRIES
13600 LORD OF LIFE LUTHERAN CHURCH
13636 OCCUPANT UNKNOWN,
13680 RANGEL, CELIA S
13760 OCCUPANT UNKNOWN,
13830 MORENO CHRISTIAN ASSEMBLY INC
13860 RANGEL, JAIME G
13890 OCCUPANT UNKNOWN,
SOUTHWEST BIBLE COLLEGE
13920 BUDDHADHAMMO TEMPLE
KHUTANON, THIRANONG
13980 DELOS, REYES R
14265 JAN PETERSON CHILD DAY CARE C
14295 CANIZALES, RUTH
ROSEHILL, KIMBERLY R
STAMBAUGH, MELANIE A
14345 PALMER, MILDRED G

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NASON ST 2005

12201 LANTZ C W PIONEER GROVES
LANTZ, DAVID L
13135 FRESNO CNTY SUPT SCHOOLS CENT
MORENO VALLEY UNIFIED SCHL DST
R O P FLORAL CLASSROOM
13256 MILLER, RUSSELL L
13290 DESANTIAGO, URIEL D
13380 CARUSO, MARY E
13394 HOLMVIG, GARY D
13430 OLIVER, JAY D
13486 CROLL, JAMES L
13535 ESQUIVEL, JERONIMO T
13597 JARAMILLO, LIDIA
13600 LORD OF LIFE LUTHERAN CHURCH
13636 OCCUPANT UNKNOWN,
13760 MONTJOY, KAT
13830 MORENO CHRISTIAN ASSEMBLY INC
SOUTHWEST BIBLE COLLEGE
13860 OCCUPANT UNKNOWN,
13890 BAHLS, LAURENCE
13920 SOONTHORN, BUNTERNG
13980 GARCIA, MOISES
14295 CANIZALES, RUTH
ROSEHILL, KIMBERLY A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NASON ST 2000

12201 LANTZ C W PIONEER GROVES
LANTZ, C W
13135 MORENO VLY UNIFIED SCHL DST
13256 BASHAM, RICHARD E
13290 OCCUPANT UNKNOWN,
13310 OCCUPANT UNKNOWN,
13380 CARUSO, WILLIAM
13394 OCCUPANT UNKNOWN,
13430 OLIVER, JAY D
13486 CROLL, JAMES L
13535 ESQUIVEL, JEFONE
13600 LORD OF LIFE LUTHERAN CHURCH
13760 OCCUPANT UNKNOWN,
SCRAPERS INC
13830 MORENO CHRISTIAN ASSEMBLY
13860 RANGEL, REYES P
13890 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NASON ST 1995

12201 LANTZ C W PIONEER GROVES
LANTZ, C W
13135 MORENO VALLEY UNIFIED SCHL DST
13290 HALL, EDMUND
13310 ROMERO, NANCY J
13380 CARUSO, WILLIAM
13394 MEHAS, TOM
13430 OLIVER, JAY D
13486 HAWKINS, DERRICK A
13535 ESQUIVEL, J
13600 LORD OF LIFE LUTHERAN CHURCH
13760 SCRAPERS INC
13830 MORENO CHRISTIAN ASSEMBLY INC
OCCUPANT UNKNOWNN
13860 RANGEL, REYES P
13890 BAHLS, L
13920 LOWRY, LEE

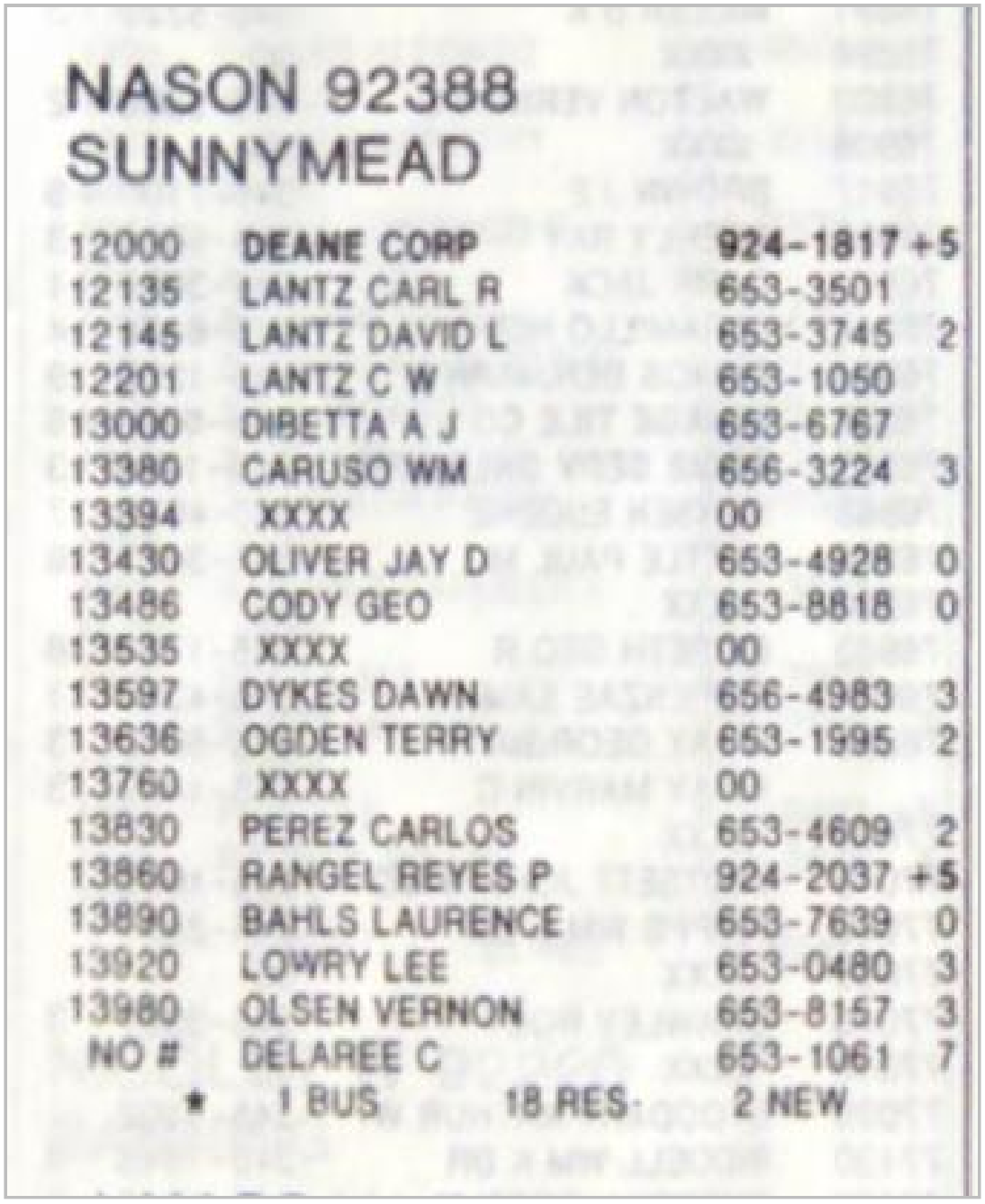
Target Street	Cross Street	Source
✓	-	EDR Digital Archive

NASON ST 1992

12201 LANTZ C W PIONEER GROVES
LANTZ, C W
13135 MORENO VALLEY UNIFIED SCHL DST
13380 CARUSO, WILLIAM
13430 OLIVER, JAY D
13600 LORD OF LIFE LUTHERAN CHURCH
13760 SCRAPERS INC
13830 MORENO CHRISTIAN ASSEMBLY
13860 RANGEL, REYES P
13890 BAHLS, L
13920 LOWRY, LEE

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

NASON ST 1985



NASON 92388
SUNNYMEAD

12000	DEANE CORP	924-1817	+5
12135	LANTZ CARL R	653-3501	
12145	LANTZ DAVID L	653-3745	2
12201	LANTZ C W	653-1050	
13000	DIBETTA A J	653-6767	
13380	CARUSO WM	656-3224	3
13394	XXXX	00	
13430	OLIVER JAY D	653-4928	0
13486	CODY GEO	653-8818	0
13535	XXXX	00	
13597	DYKES DAWN	656-4983	3
13636	OGDEN TERRY	653-1995	2
13760	XXXX	00	
13830	PEREZ CARLOS	653-4609	2
13860	RANGEL REYES P	924-2037	+5
13890	BAHLS LAURENCE	653-7639	0
13920	LOWRY LEE	653-0480	3
13980	OLSEN VERNON	653-8157	3
NO #	DELAREE C	653-1061	7

* 1 BUS 18 RES 2 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

NASON ST 1980



0
9
0

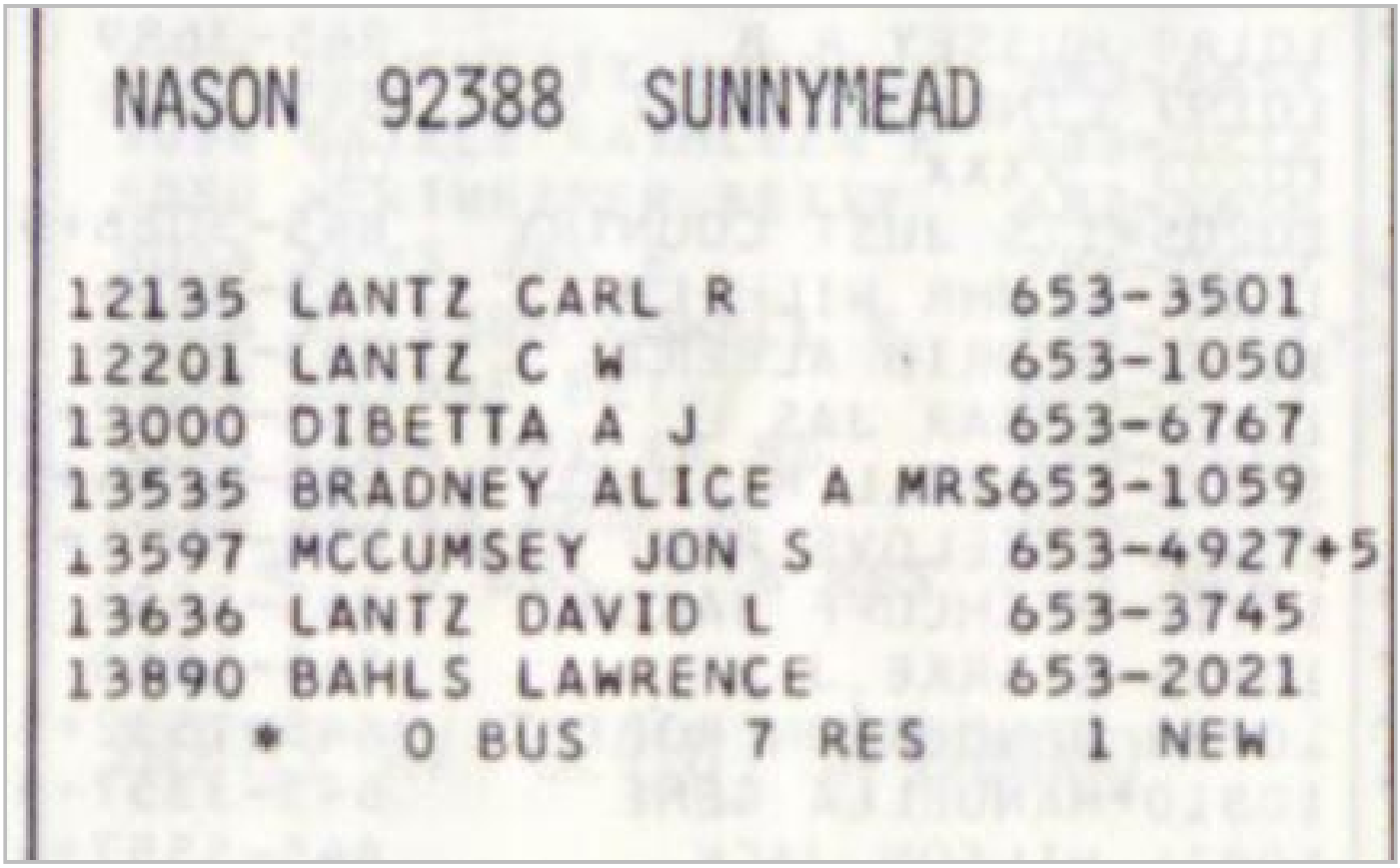
NASON 92388 SUNNYMEAD

12135	LANTZ CARL R	653-3501
12201	LANTZ C W	653-1050
8 13000	DIBETTA A J	653-6767
8 13394	PATTISON RICHARD	653-4256 +0
13430	OLIVER JAY D	653-4928 +0
13486	CODY GEO	653-8818 +0
13535	XXXX	00
13597	TYLER THOS	653-0493 +0
13636	LANTZ DAVID L	653-3745
13890	BAHLS LAURENCE	653-7639 +0
NO #	DELAREE C	653-1061 7

* 0 BUS 11 RES 5 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

NASON ST 1975



NASON 92388 SUNNYMEAD

12135	LANTZ CARL R	653-3501
12201	LANTZ C W	653-1050
13000	DIBETTA A J	653-6767
13535	BRADNEY ALICE A MRS	653-1059
▲3597	MCCUMSEY JON S	653-4927+5
13636	LANTZ DAVID L	653-3745
13890	BAHLS LAWRENCE	653-2021

* 0 BUS 7 RES 1 NEW

Appendix C. Environmental Database Search Report

Appendix

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Proposed Moreno Valley Elementary School Nason St
13636 Nason Street
Moreno Valley, CA 92555

Inquiry Number: 5361337.2s
July 13, 2018

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

13636 NASON STREET
MORENO VALLEY, CA 92555

COORDINATES

Latitude (North):	33.9219450 - 33° 55' 19.00''
Longitude (West):	117.1903770 - 117° 11' 25.35''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	482402.6
UTM Y (Meters):	3753323.5
Elevation:	1623 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641326 SUNNYMEAD, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140530, 20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
13636 NASON STREET
MORENO VALLEY, CA 92555

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	MOUNTAIN VIEW MIDDLE	13130 MORRISON AVENU	ENVIROSTOR, SCH, CHMIRS, HAZNET	Higher	3676, 0.696, NW
2	LA JOLLA ELEMENTARY	OLIVER STREET/CACTUS	ENVIROSTOR, SCH	Lower	4120, 0.780, SSE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing
VCP ---------- Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register

HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register
CERS HAZ WASTE	CERS HAZ WASTE

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data

CONSENT Superfund (CERCLA) Consent Decrees
INDIAN RESERV Indian Reservations
FUSRAP Formerly Utilized Sites Remedial Action Program
UMTRA Uranium Mill Tailings Sites
LEAD SMELTERS Lead Smelter Sites
US AIRS Aerometric Information Retrieval System Facility Subsystem
US MINES Mines Master Index File
ABANDONED MINES Abandoned Mines
FINDS Facility Index System/Facility Registry System
ECHO Enforcement & Compliance History Information
DOCKET HWC Hazardous Waste Compliance Docket Listing
UXO Unexploded Ordnance Sites
FUELS PROGRAM EPA Fuels Program Registered Listing
CA BOND EXP. PLAN Bond Expenditure Plan
Cortese "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings CUPA Resources List
DRYCLEANERS Cleaner Facilities
EMI Emissions Inventory Data
ENF Enforcement Action Listing
Financial Assurance Financial Assurance Information Listing
HAZNET Facility and Manifest Data
ICE ICE
HIST CORTESE Hazardous Waste & Substance Site List
HWP EnviroStor Permitted Facilities Listing
HWT Registered Hazardous Waste Transporter Database
MINES Mines Site Location Listing
MWMP Medical Waste Management Program Listing
NPDES NPDES Permits Listing
PEST LIC Pesticide Regulation Licenses Listing
PROC Certified Processors Database
Notify 65 Proposition 65 Records
UIC UIC Listing
WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List
CIWQS California Integrated Water Quality System
CERS CERS
SAMPLING POINT SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ Well Stimulation Project (GEOTRACKER)
NON-CASE INFO NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS PROD WATER PONDS (GEOTRACKER)
PROJECT PROJECT (GEOTRACKER)
UIC GEO UIC GEO (GEOTRACKER)
MILITARY PRIV SITES MILITARY PRIV SITES (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List

EXECUTIVE SUMMARY

RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 04/30/2018 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

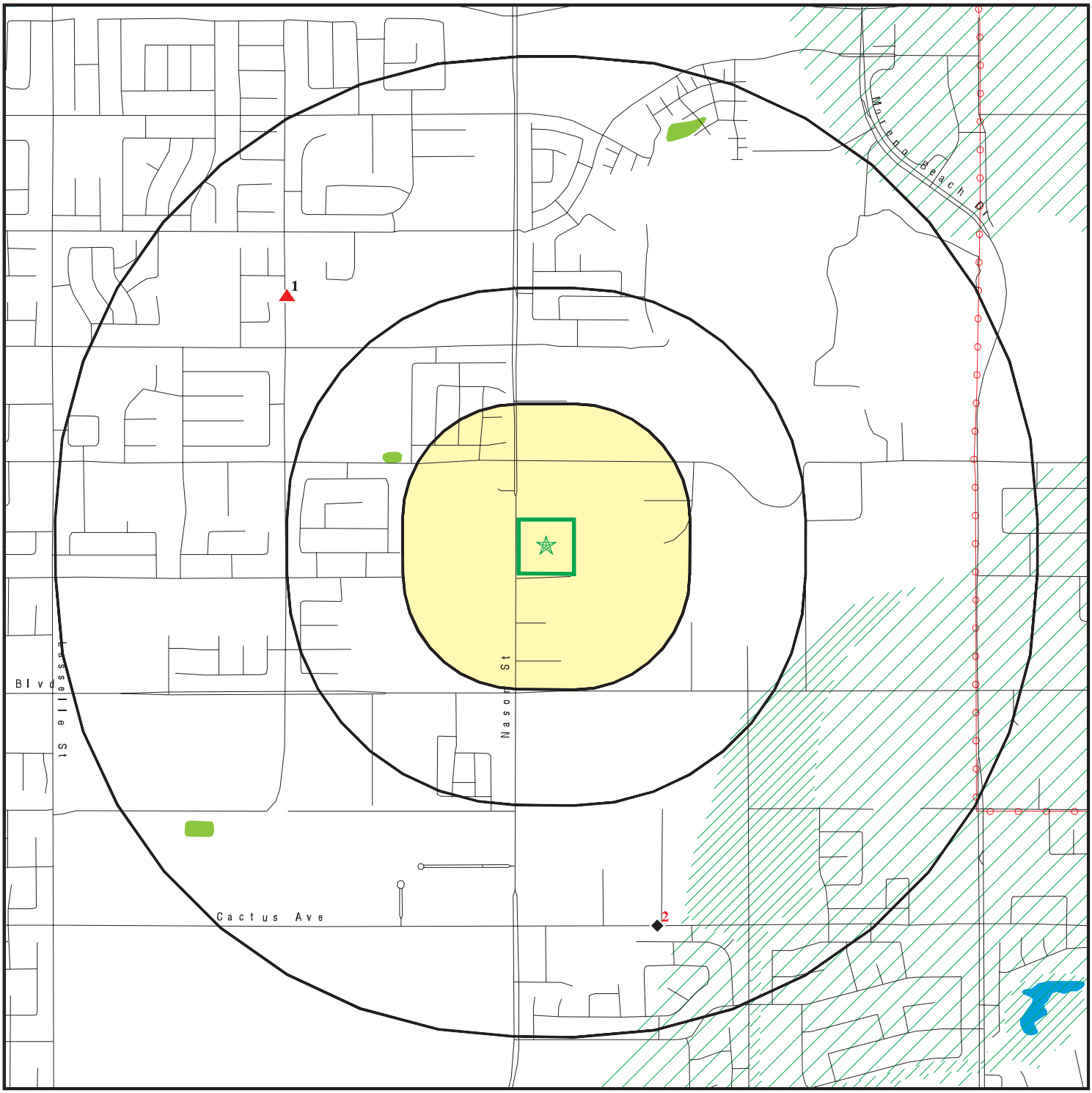
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MOUNTAIN VIEW MIDDLE Facility Id: 60000825 Status: No Further Action	***13130 MORRISON AVENU***	***NW 1/2 - 1 (0.696 mi.)***	***1***	***8***

Lower Elevation	Address	Direction / Distance	Map ID	Page
LA JOLLA ELEMENTARY Facility Id: 33010075 Status: No Action Required	***OLIVER STREET/CACTUS***	***SSE 1/2 - 1 (0.780 mi.)***	***2***	***13***

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5361337.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA
Power transmission lines
100-year flood zone
500-year flood zone
National Wetland Inventory
State Wetlands

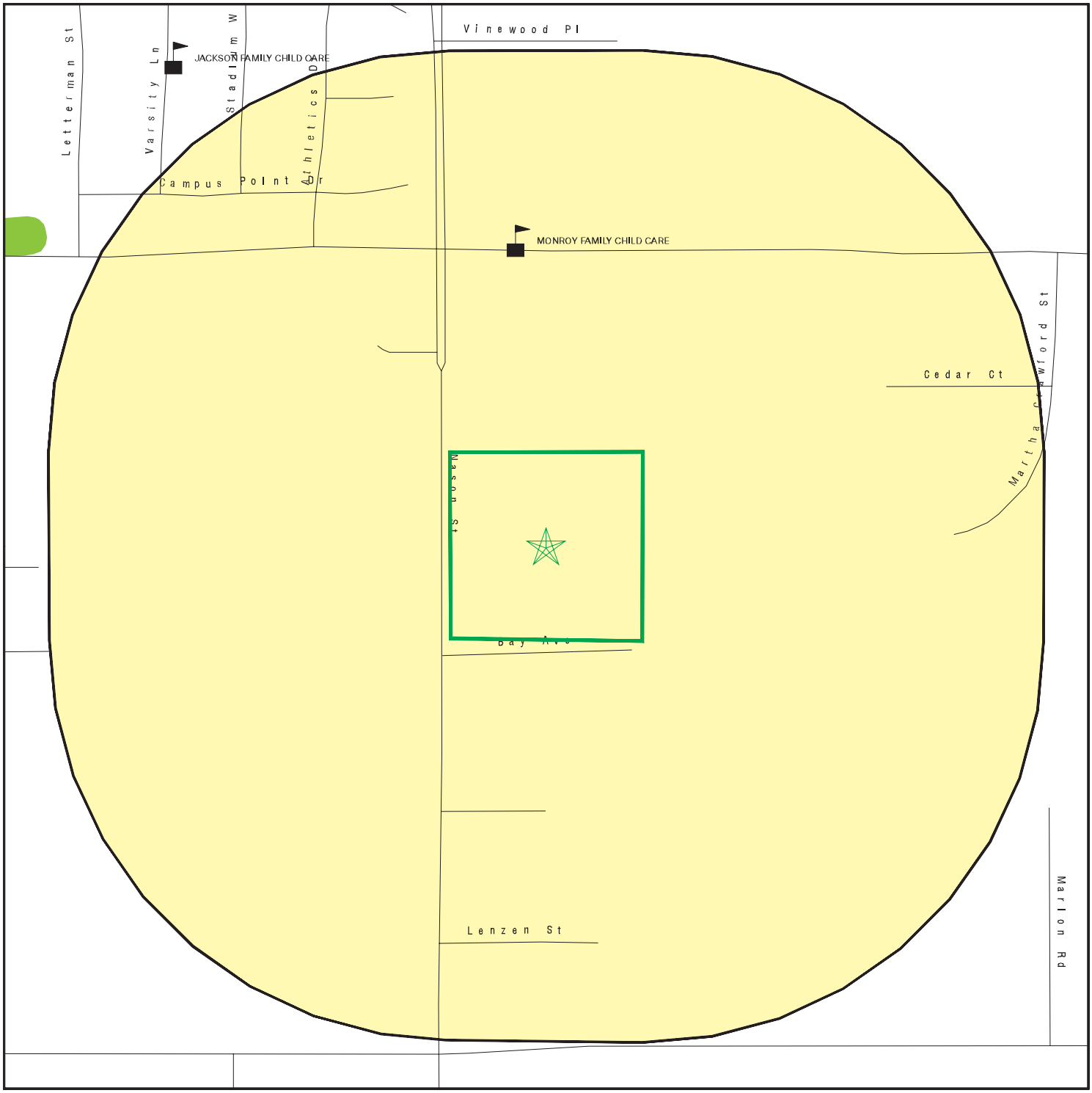
Upgradient Area
Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Proposed Moreno Valley Elementary School Nason St	CLIENT:	PlaceWorks
ADDRESS:	13636 Nason Street Moreno Valley CA 92555	CONTACT:	Denise Clendening
LAT/LONG:	33.921945 / 117.190377	INQUIRY #:	5361337.2s
		DATE:	July 13, 2018 3:30 pm

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DETAIL MAP - 5361337.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Proposed Moreno Valley Elementary School Nason St	CLIENT:	PlaceWorks
ADDRESS:	13636 Nason Street Moreno Valley CA 92555	CONTACT:	Denise Clendening
LAT/LONG:	33.921945 / 117.190377	INQUIRY #:	5361337.2s
		DATE:	July 13, 2018 3:33 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	2	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	0	2	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 NW 1/2-1 0.696 mi. 3676 ft. **MOUNTAIN VIEW MIDDLE SCHOOL EXPANSION**
13130 MORRISON AVENUE
MORENO VALLEY, CA 92555

ENVIROSTOR SCH CHMIRS HAZNET **S105671052 N/A**

Relative: Higher

Actual: 1668 ft.

ENVIROSTOR:

Facility ID:	60000825
Status:	No Further Action
Status Date:	06/16/2008
Site Code:	404779
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	0.42
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.92984
Longitude:	-117.2000
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS, SCHOOL - MIDDLE
Potential COC:	Arsenic Chlordane DDD DDE DDT Endrin Toxaphene
Confirmed COC:	30001-NO 30004-NO 30023-NO 30006-NO 30007-NO 30008-NO 30010-NO
Potential Description:	SOIL
Alias Name:	404779
Alias Type:	Project Code (Site Code)
Alias Name:	60000825
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	03/04/2008
Comments:	Rec'd executed Agreement from Sharon. O/N to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	06/27/2008
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Workplan
Completed Date:	03/20/2008
Comments:	DTSC concurred with the proposed sampling approach.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report

MOUNTAIN VIEW MIDDLE SCHOOL EXPANSION (Continued) **S105671052**

Completed Date:	06/16/2008
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Facility ID:	60000825
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	0.42
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404779
Assembly:	61
Senate:	31
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	06/16/2008
Restricted Use:	NO
Funding:	School District
Latitude:	33.92984
Longitude:	-117.2000
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS, SCHOOL - MIDDLE
Potential COC:	Arsenic, Chlordane, DDD, DDE, DDT, Endrin, Toxaphene
Confirmed COC:	30001-NO, 30004-NO, 30023-NO, 30006-NO, 30007-NO, 30008-NO, 30010-NO
Potential Description:	SOIL
Alias Name:	404779
Alias Type:	Project Code (Site Code)
Alias Name:	60000825
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	03/04/2008
Comments:	Rec'd executed Agreement from Sharon. O/N to District.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo

MOUNTAIN VIEW MIDDLE SCHOOL EXPANSION (Continued) **S105671052**

Completed Date: 06/27/2008
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Workplan
Completed Date: 03/20/2008
Comments: DTSC concurred with the proposed sampling approach.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/16/2008
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

CHMIRS:
OES Incident Number: 1-6181
OES notification: 10/26/2001
OES Date: Not reported
OES Time: Not reported
Date Completed: **Not reported**
Property Use: Not reported
Agency Id Number: Not reported
Agency Incident Number: Not reported
Time Notified: Not reported
Time Completed: Not reported
Surrounding Area: Not reported
Estimated Temperature: Not reported
Property Management: Not reported
More Than Two Substances Involved?: Not reported
Resp Agncy Personel # Of Decontaminated: Not reported
Responding Agency Personel # Of Injuries: Not reported
Responding Agency Personel # Of Fatalities: Not reported
Others Number Of Decontaminated: Not reported
Others Number Of Injuries: Not reported
Others Number Of Fatalities: Not reported
Vehicle Make/year: Not reported
Vehicle License Number: Not reported
Vehicle State: Not reported
Vehicle Id Number: Not reported
CA DOT PUC/ICC Number: Not reported
Company Name: Not reported
Reporting Officer Name/ID: Not reported
Report Date: Not reported
Facility Telephone: Not reported
Waterway Involved: No
Waterway: Not reported

MOUNTAIN VIEW MIDDLE SCHOOL EXPANSION (Continued) **S105671052**

Spill Site:	Not reported
Cleanup By:	Co. Health
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2001
Agency:	Riverside Co Fire Dept.
Incident Date:	10/26/200112:00:00 AM
Admin Agency:	Riverside County Environmental Health
Amount:	Not reported
Contained:	Yes
Site Type:	School
E Date:	Not reported
Substance:	white powder
Ounces:	16
Unknown:	0.000000
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	Per caller, a school maintenance worker located substance and called the fire Dept.

HAZNET:

envid:	S105671052
Year:	2013
GEPAID:	CAL000032295
Contact:	NANCY ANDERSON
Telephone:	9515717520
Mailing Name:	Not reported
Mailing Address:	25634 ALESSANDRO BLVD
Mailing City,St,Zip:	MORENO VALLEY, CA 92553
Gen County:	Riverside
TSD EPA ID:	CAD982444481
TSD County:	San Bernardino
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.2
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Not reported

MOUNTAIN VIEW MIDDLE SCHOOL EXPANSION (Continued) **S105671052**

envid: S105671052
Year: 2007
GEPAID: CAL000032295
Contact: NANCY ANDERSON
Telephone: 9515717520
Mailing Name: Not reported
Mailing Address: 25634 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 92553
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.05
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: S105671052
Year: 2007
GEPAID: CAL000032295
Contact: NANCY ANDERSON
Telephone: 9515717520
Mailing Name: Not reported
Mailing Address: 25634 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 92553
Gen County: Not reported
TSD EPA ID: CAD008364432
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Fuel Blending Prior To Energy Recovery At Another Site
Tons: 0.09
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: S105671052
Year: 2007
GEPAID: CAL000032295
Contact: NANCY ANDERSON
Telephone: 9515717520
Mailing Name: Not reported
Mailing Address: 25634 ALESSANDRO BLVD
Mailing City,St,Zip: MORENO VALLEY, CA 92553
Gen County: Not reported
TSD EPA ID: WAD991281767
TSD County: Not reported
Waste Category: Laboratory waste chemicals
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.01
Cat Decode: Not reported
Method Decode: Not reported
Facility County: Riverside

envid: S105671052

MOUNTAIN VIEW MIDDLE SCHOOL EXPANSION (Continued) **S105671052**

Year:	2007
GEPAID:	CAL000032295
Contact:	NANCY ANDERSON
Telephone:	9515717520
Mailing Name:	Not reported
Mailing Address:	25634 ALESSANDRO BLVD
Mailing City,St,Zip:	MORENO VALLEY, CA 92553
Gen County:	Not reported
TSD EPA ID:	CAD008364432
TSD County:	Not reported
Waste Category:	Laboratory waste chemicals
Disposal Method:	Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.17
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Riverside

Click this hyperlink while viewing on your computer to access
2 additional CA_HAZNET: record(s) in the EDR Site Report.

---

2 **LA JOLLA ELEMENTARY SCHOOL** **ENVIROSTOR** **S118756716**
SSE **OLIVER STREET/CACTUS AVENUE** **SCH** **N/A**
1/2-1 **MORENO VALLEY, CA 92555**
0.780 mi.
4120 ft.

Relative:
Lower

Actual:
1539 ft.

ENVIROSTOR:

Facility ID:	33010075
Status:	No Action Required
Status Date:	09/08/2003
Site Code:	404463
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	9
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	61
Senate:	31
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.91006
Longitude:	-117.1862
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	LA JOLLA ELEMENTARY SCHOOL
Alias Type:	Alternate Name
Alias Name:	MORENO VALLEY UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	MORENO VALLEY USD-PROPOSED LA JOLLA ES

LA JOLLA ELEMENTARY SCHOOL (Continued) **S118756716**

Alias Type: Alternate Name
Alias Name: 404463
Alias Type: Project Code (Site Code)
Alias Name: 33010075
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 07/16/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 09/16/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 09/08/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Technical Report
Completed Date: 07/29/2003
Comments: Look at DTSC Comments.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement Application
Completed Date: 06/24/2003
Comments: Environmental Oversight Program Application submitted by School District.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 33010075
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 9
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP

LA JOLLA ELEMENTARY SCHOOL (Continued) **S118756716**

Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404463
Assembly:	61
Senate:	31
Special Program Status:	Not reported
Status:	No Action Required
Status Date:	09/08/2003
Restricted Use:	NO
Funding:	School District
Latitude:	33.91006
Longitude:	-117.1862
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED, No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	LA JOLLA ELEMENTARY SCHOOL
Alias Type:	Alternate Name
Alias Name:	MORENO VALLEY UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	MORENO VALLEY USD-PROPOSED LA JOLLA ES
Alias Type:	Alternate Name
Alias Name:	404463
Alias Type:	Project Code (Site Code)
Alias Name:	33010075
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	07/16/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	09/16/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	09/08/2003
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Technical Report
Completed Date:	07/29/2003
Comments:	Look at DTSC Comments.
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported

LA JOLLA ELEMENTARY SCHOOL (Continued) **S118756716**

Completed Document Type:	Environmental Oversight Agreement Application
Completed Date:	06/24/2003
Comments:	Environmental Oversight Program Application submitted by School District.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: N/A
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: N/A
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: N/A
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 07/30/2018
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/16/2018
Date Data Arrived at EDR: 02/22/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 78

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/09/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/29/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/29/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/19/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/16/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 37

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/12/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/16/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/12/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/06/2018
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/14/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/24/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 26
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 06/11/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 06/21/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/12/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 01/13/2018
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 134

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/24/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/14/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/16/2017
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 80

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 06/22/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 38
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/19/2018
Date Data Arrived at EDR: 03/21/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/20/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/09/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 39

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/30/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 05/04/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 71

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 05/11/2018
Number of Days to Update: 71

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Quarterly

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 44

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/24/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 03/28/2018
Date Data Arrived at EDR: 05/25/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 46

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 04/19/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 10

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/24/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 01/28/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 46

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/08/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 0

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/27/2018
Next Scheduled EDR Contact: 07/09/2018
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 51

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/24/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/25/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/11/2018
Next Scheduled EDR Contact: 07/23/2018
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/15/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/08/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/22/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/25/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/09/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/20/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/13/2018
Next Scheduled EDR Contact: 07/23/2018
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 07/09/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 06/07/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/04/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 04/27/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 04/05/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 85
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2018
Date Data Arrived at EDR: 04/16/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 74

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/09/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/28/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 05/13/2018
Date Data Arrived at EDR: 05/30/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 30

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/03/2018
Date Data Arrived at EDR: 05/31/2018
Date Made Active in Reports: 06/29/2018
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/08/2018
Date Data Arrived at EDR: 03/13/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 87

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/20/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/21/2018
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 03/23/2018
Number of Days to Update: 28

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 02/25/2018
Date Data Arrived at EDR: 03/17/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 73

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/13/2018
Next Scheduled EDR Contact: 07/30/2018
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 04/13/2018
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 06/01/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/20/2018
Date Data Arrived at EDR: 02/21/2018
Date Made Active in Reports: 03/23/2018
Number of Days to Update: 30

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/23/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 38

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA SAN FRANCISCO CO

Cupa facilities

Date of Government Version: 04/20/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 10

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 05/07/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 39

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

DRYCLEAN AVAQMD: DRYCLEAN AVAQMD

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 03/08/2018
Date Data Arrived at EDR: 03/13/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 52

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 06/22/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: DRYCLEAN SOUTH COAST

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 03/16/2018
Date Data Arrived at EDR: 03/20/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 45

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 06/11/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 03/27/2018
Date Data Arrived at EDR: 03/29/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 36

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 147

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/20/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 07/06/2018
Number of Days to Update: 73

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/20/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 60

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/15/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 38

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/09/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 97

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/12/2018
Next Scheduled EDR Contact: 07/23/2018
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/20/2018
Date Data Arrived at EDR: 02/21/2018
Date Made Active in Reports: 04/03/2018
Number of Days to Update: 41

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/23/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/20/2018
Date Data Arrived at EDR: 02/21/2018
Date Made Active in Reports: 04/03/2018
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/23/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/09/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 69

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/27/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 42

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/16/2018
Date Made Active in Reports: 07/05/2018
Number of Days to Update: 50
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 04/19/2018
Number of Days to Update: 45
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/23/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 38
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/14/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 04/13/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 67
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/25/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Varies

PROJECT: PROJECT (GEOTRACKER)
Projects sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

NON-CASE INFO: NON-CASE INFO (GEOTRACKER)
Non-Case Information sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

PROD WATER PONDS: PROD WATER PONDS (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

OTHER OIL GAS: OTHER OIL & GAS (GEOTRACKER)
Other Oil & Gas Projects sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data
The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/24/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

SAMPLING POINT: SAMPLING POINT (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

UIC GEO: UIC GEO (GEOTRACKER)
Underground control injection sites

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

CIWQS: The California Integrated Water Quality System
The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 60

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

WELL STIM PROJ: WELL SAMP PROJ (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 51

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 65

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 24

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/31/2018
Date Data Arrived at EDR: 04/05/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 70

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/14/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing

Cupa Facility Listing

Date of Government Version: 05/07/2018
Date Data Arrived at EDR: 05/09/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 36

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/25/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 02/26/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 14

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 48

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/30/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 05/02/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 44

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 04/25/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/08/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 39

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/12/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 9

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/08/2018
Date Made Active in Reports: 04/30/2018
Number of Days to Update: 53

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/21/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 50

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/30/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 02/02/2018
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/28/2018
Number of Days to Update: 54

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/14/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 28

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 05/09/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 34

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/16/2018
Next Scheduled EDR Contact: 07/30/2018
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 04/16/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 60

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/16/2018
Date Data Arrived at EDR: 04/17/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 63

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/17/2018
Next Scheduled EDR Contact: 07/30/2018
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/14/2018
Number of Days to Update: 13

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 04/17/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 63

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/17/2018
Next Scheduled EDR Contact: 07/30/2018
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 13

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/05/2018
Next Scheduled EDR Contact: 10/22/2018
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/21/2018
Date Data Arrived at EDR: 02/22/2018
Date Made Active in Reports: 04/03/2018
Number of Days to Update: 40

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 03/30/2018
Date Data Arrived at EDR: 04/06/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 28

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 07/11/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 01/11/2018
Date Data Arrived at EDR: 01/12/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 27

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 15

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 03/27/2018
Date Data Arrived at EDR: 03/29/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 18

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 07/02/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/31/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 41

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 45

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/25/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 42

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 45

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 63

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/08/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/15/2018
Date Data Arrived at EDR: 03/19/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 46
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 50
Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 24
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 04/05/2018
Date Data Arrived at EDR: 04/10/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 24
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/02/2018
Date Data Arrived at EDR: 04/04/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 71
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/03/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/02/2018
Date Data Arrived at EDR: 04/04/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 76
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/03/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 11/17/2017
Number of Days to Update: 14

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 04/09/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 69

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/06/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 03/05/2018
Date Data Arrived at EDR: 03/07/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 40

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/23/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 11

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 06/07/2018
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 07/10/2018
Number of Days to Update: 28
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/14/2018
Next Scheduled EDR Contact: 10/01/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/16/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 31
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/14/2018
Date Data Arrived at EDR: 03/20/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 45

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/15/2018
Date Data Arrived at EDR: 03/20/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 45

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/06/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 02/20/2018
Date Data Arrived at EDR: 02/20/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/22/2018
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/04/2018
Date Data Arrived at EDR: 02/06/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 42

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/16/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/08/2018
Date Data Arrived at EDR: 03/13/2018
Date Made Active in Reports: 05/04/2018
Number of Days to Update: 52

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 07/12/2018
Number of Days to Update: 30

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 04/16/2018
Number of Days to Update: 20

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/21/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/03/2018
Date Data Arrived at EDR: 04/06/2018
Date Made Active in Reports: 05/09/2018
Number of Days to Update: 33

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/21/2018
Next Scheduled EDR Contact: 10/08/2018
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/11/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 35

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/16/2018
Next Scheduled EDR Contact: 07/30/2018
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/04/2018
Date Data Arrived at EDR: 06/08/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 33

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 05/31/2018
Next Scheduled EDR Contact: 09/17/2018
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List
Cupa facilities

Date of Government Version: 01/26/2018
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 47

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 51

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

TULARE COUNTY:

CUPA Facility List
Cupa program facilities

Date of Government Version: 03/19/2018
Date Data Arrived at EDR: 03/22/2018
Date Made Active in Reports: 04/17/2018
Number of Days to Update: 26

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 07/02/2018
Next Scheduled EDR Contact: 08/20/2018
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/18/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 58

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/23/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/09/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/23/2018
Next Scheduled EDR Contact: 08/06/2018
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 04/26/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 28

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/13/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/20/2018
Date Data Arrived at EDR: 07/03/2018
Date Made Active in Reports: 07/12/2018
Number of Days to Update: 9

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 06/27/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/10/2018
Date Data Arrived at EDR: 05/15/2018
Date Made Active in Reports: 06/15/2018
Number of Days to Update: 31

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/25/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 01/03/2018
Date Data Arrived at EDR: 02/14/2018
Date Made Active in Reports: 03/22/2018
Number of Days to Update: 36

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/18/2018
Next Scheduled EDR Contact: 08/27/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/23/2018
Next Scheduled EDR Contact: 07/23/2018
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 04/30/2018
Date Data Arrived at EDR: 05/03/2018
Date Made Active in Reports: 06/07/2018
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/03/2018
Next Scheduled EDR Contact: 08/13/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/12/2018
Next Scheduled EDR Contact: 10/29/2018
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/21/2018
Next Scheduled EDR Contact: 09/03/2018
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/11/2018
Next Scheduled EDR Contact: 09/24/2018
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PROPOSED MORENO VALLEY ELEMENTARY SCHOOL NASON ST
13636 NASON STREET
MORENO VALLEY, CA 92555

TARGET PROPERTY COORDINATES

Latitude (North):	33.921945 - 33° 55' 19.00''
Longitude (West):	117.190377 - 117° 11' 25.36''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	482402.6
UTM Y (Meters):	3753323.5
Elevation:	1623 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5641326 SUNNYMEAD, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

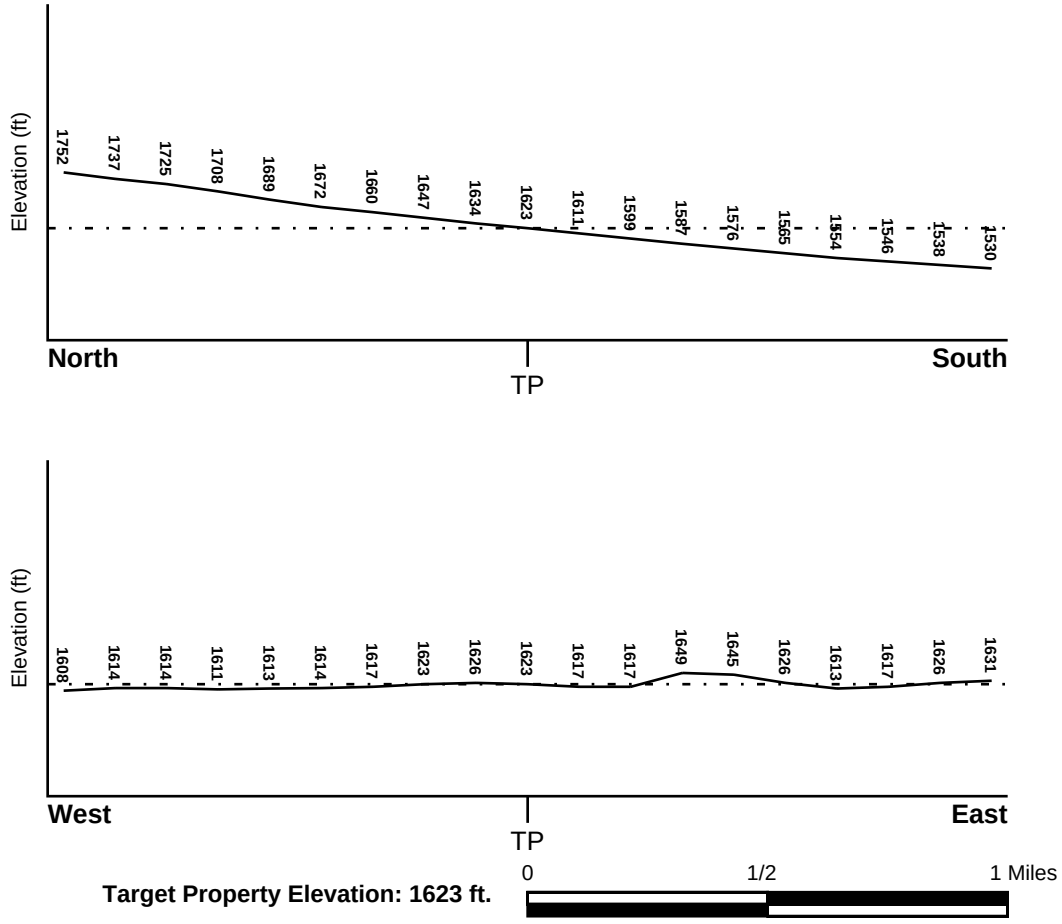
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 1623 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06065C0765G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06065C0770G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

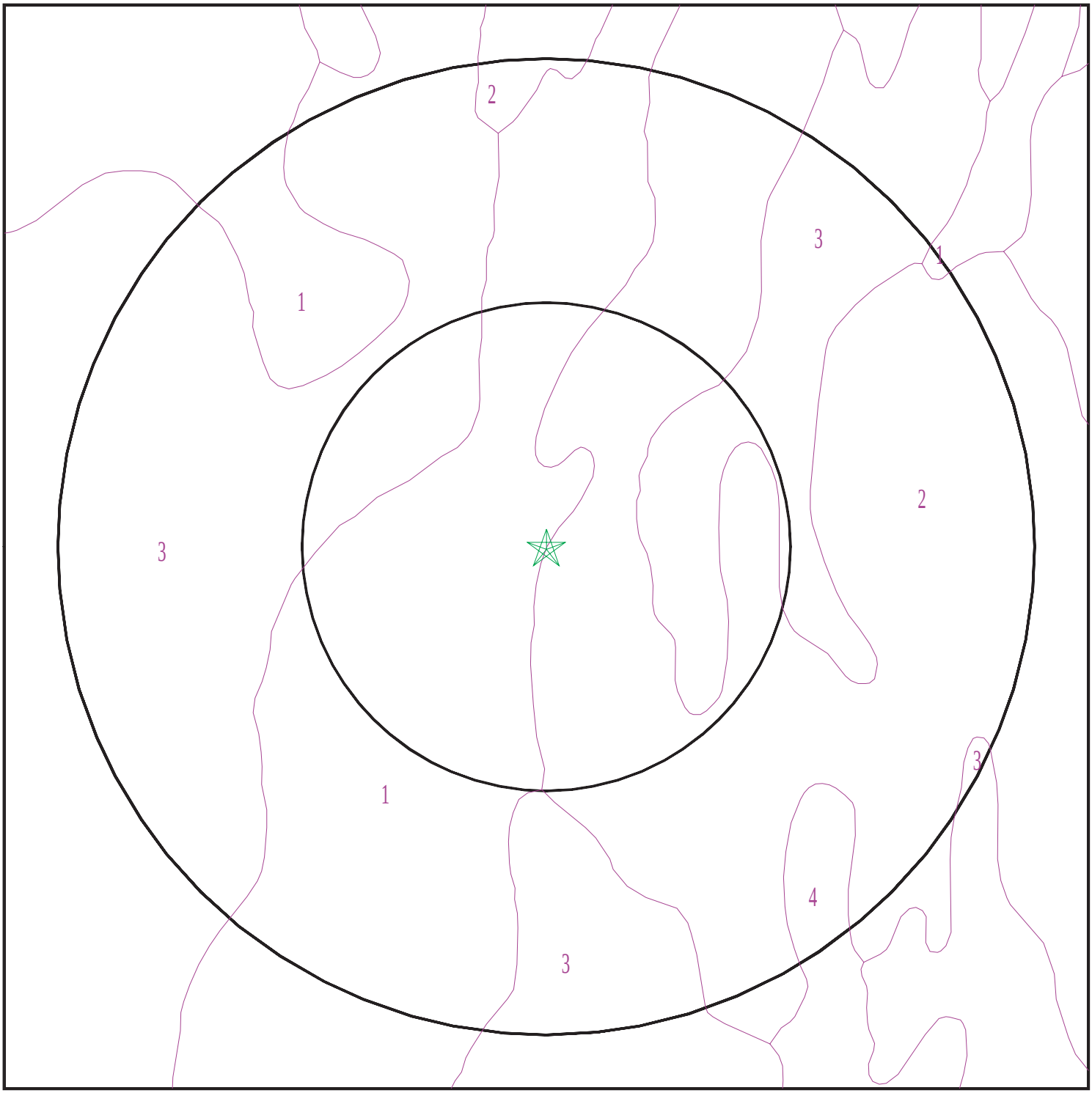
Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5361337.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Proposed Moreno Valley Elementary School Nason St	CLIENT:	PlaceWorks
ADDRESS:	13636 Nason Street Moreno Valley CA 92555	CONTACT:	Denise Clendening
LAT/LONG:	33.921945 / 117.190377	INQUIRY #:	5361337.2s
		DATE:	July 13, 2018 3:34 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	42 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.3 Min: 5.6
2	7 inches	16 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay. FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.3 Min: 6.1

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	16 inches	68 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

Soil Map ID: 4

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	42 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 7.8 Min: 6.1
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000139089	1/2 - 1 Mile NW
2	USGS40000139052	1/2 - 1 Mile East
A4	USGS40000138940	1/2 - 1 Mile SSE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

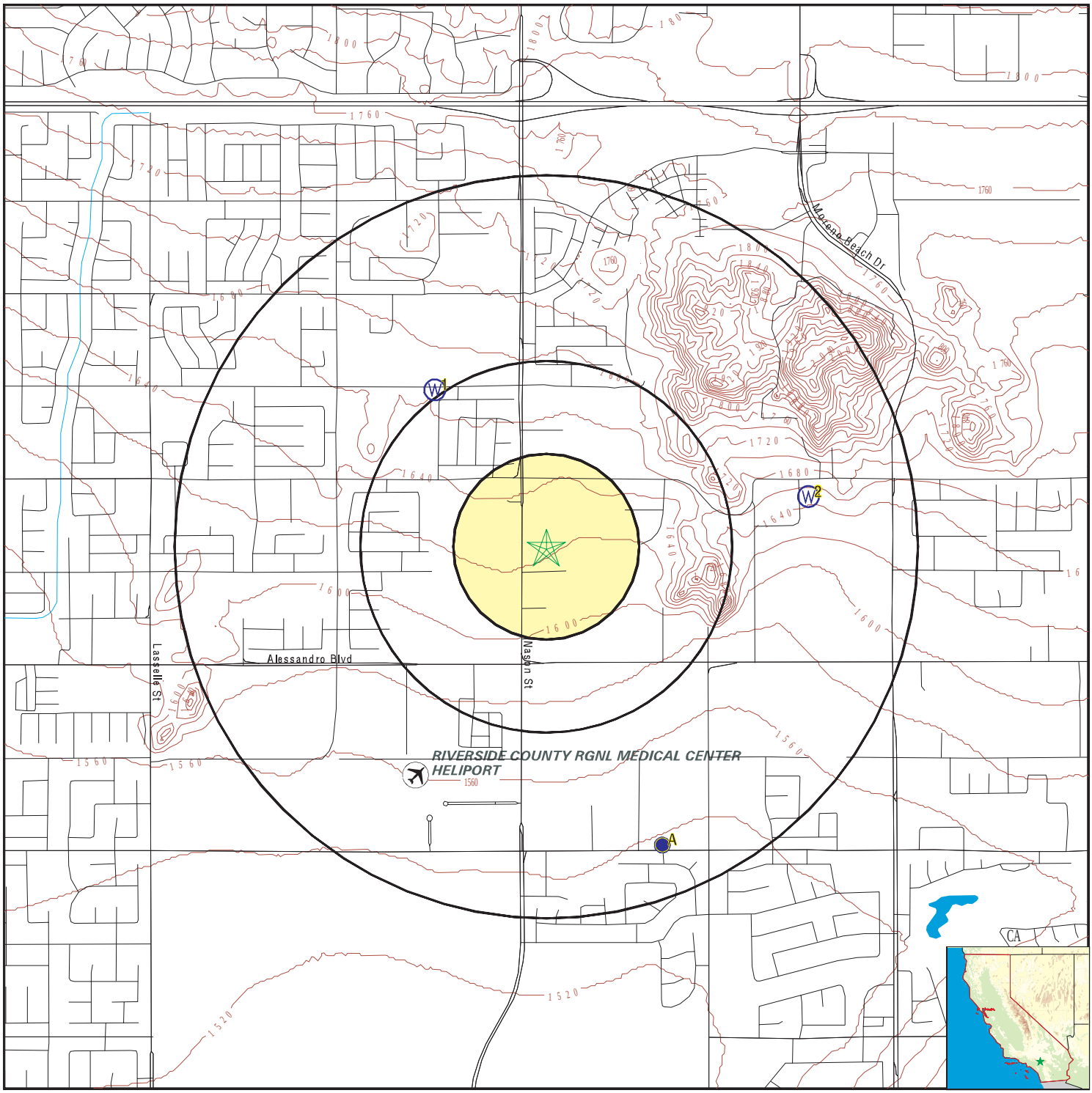
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	CADW60000017358	1/2 - 1 Mile SSE

PHYSICAL SETTING SOURCE MAP - 5361337.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Proposed Moreno Valley Elementary School Nason St	CLIENT:	PlaceWorks
ADDRESS:	13636 Nason Street Moreno Valley CA 92555	CONTACT:	Denise Clendening
LAT/LONG:	33.921945 / 117.190377	INQUIRY #:	5361337.2s
		DATE:	July 13, 2018 3:34 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
NW
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000139089**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-335541117114101		
Monloc name:	010N003W28K003S		
Monloc type:	Well		
Monloc desc:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
Huc code:	Not Reported	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.9280726
Longitude:	-117.1955925	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2190
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	125
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

2
East
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000139052**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-335526117103801		
Monloc name:	010N003W27Q002S		
Monloc type:	Well		
Monloc desc:	COMPUTER GENERATED LAT/LONG. +/- 500FT		
Huc code:	Not Reported	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.9239059
Longitude:	-117.1780915	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	2190
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

A3
SSE **CA WELLS** **CADW60000017358**
1/2 - 1 Mile
Lower

Objectid:	17358
Latitude:	33.9103
Longitude:	-117.1854
Site code:	339103N1171854W001
State well numbe:	03S03W15F001S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	33
County name:	Riverside
Basin code:	’8-5’
Basin desc:	San Jacinto
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000017358

A4
SSE **FED USGS** **USGS40000138940**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-335437117110101		
Monloc name:	003S003W15F001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070202	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.9102951
Longitude:	-117.1844806	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1539.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	244
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 71

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1987-10-27	137.57		1987-05-01	137.57	
1986-09-15	134.63		1986-05-15	126.32	
1985-10-01	123.57				
Note: Other conditions existed that would affect the measured water level.					
1985-05-10	125.74		1984-09-21	124.87	
1984-04-11	127.37				
Note: A nearby site that taps the same aquifer was being pumped.					
1983-11-30	110.60		1983-07-27	122.29	
1982-09-15	113.51		1981-08-19	119.63	
1980-12-04	109.90		1980-06-13	111.50	
1979-08-30	113.92		1979-04-24	114.00	
1978-11-16	118.70		1978-04-14	119.80	
1977-10-05	126.00		1977-04-15	138.60	
1976-10-22	129.60		1975-10-29	129.60	
1975-04-02	127.50		1974-10-15	133.30	
1974-03-25	129.10		1973-11-06	129.70	
1973-04-13	131.30		1972-10-17	131.80	
1972-04-26	137.70		1971-10-15	140.60	
1971-04-01	137.10		1970-10-14	137.40	
1970-04-08	136.50		1969-11-12	137.80	
1969-04-11	129.11		1968-11-14	136.11	
1968-04-03	130.41		1967-11-01	138.11	
1967-03-30	140.01		1966-10-31	150.31	
1966-04-26	147.91		1965-11-09	148.95	
1965-04-22	129.94		1964-10-07	147.03	
1964-03-26	132.04		1963-11-01	125.94	
1963-04-02	114.10		1962-10-24	121.61	
1961-11-09	149.46		1961-04-15	148.82	
1960-10-23	148.41		1959-03-08	143.61	
1958-11-28	134.61		1958-04-28	139.50	
1957-10-04	147.44		1957-04-26	148.59	
1956-10-23	159.09		1956-02-24	141.50	
1955-11-03	143.51		1955-04-08	139.43	
1954-11-21	125.79		1954-04-07	111.88	
1953-12-23	132.11		1953-10-21	134.69	
1952-08-06	143.56				
1952-06-10	186.46				
Note: The site was being pumped.					
1952-05-09	128.38		1952-04-01	99.85	
1952-01-24	105.51		1951-06-22	140.90	
1951-05-29	139.20				

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92555	4	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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Appendix D. Health and Safety Plan

Appendix

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August 2018 | Health and Safety Plan

PROPOSED MORENO VALLEY ELEMENTARY SCHOOL-NASON STREET

for Moreno Valley Unified School District

Prepared for:

Moreno Valley Unified School District
Contact: Moreno Valley Unified School District
23301 Dracaea Avenue
Moreno Valley CA 92553

Project Number:
MORE-33.0

Prepared by:

PlaceWorks
Denise Clendening, Ph.D., Associate Principal
2850 Inland Empire Blvd, Suite B
Ontario, California 91764
909.989.4449
info@placeworks.com
www.placeworks.com

PLACEWORKS

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Appendix C Heat Stress and Heat Stress Monitoring
Appendix D Medical Monitoring Program
Appendix E Properties of Materials and Toxicological Profiles
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1. Applicable Standards and Goals

1.1 GENERAL

This Health and Safety Plan (HASP) was prepared by PlaceWorks for Moreno Valley Unified School District (the District). This HASP provides an overview of current conditions at the site and describes the safety procedures to be employed and the rationale for their selection. The HASP has been prepared to ensure proper precautions are taken to protect human health and safety while work is being performed at the site. During the development of this HASP, consideration was given to current safety standards as defined by the U.S. Environmental Protection Agency (EPA), the Occupational Health and Safety Administration (OSHA), and the National Institute of Occupational Safety and Health (NIOSH). This HASP was prepared in accordance with guidelines set forth in Title 8 of the California Code of Regulations, Section 5192 (8 CCR 5192). In addition, this HASP also describes the health effects and standards for known contaminants and the procedures designed to account for the potential for exposure to unknown substances.

1.2 SCOPE AND APPLICABILITY OF THE HEALTH AND SAFETY PLAN

The purpose of this HASP is to define the requirements and designate protocols to be followed by the onsite personnel during the field activities. Site conditions, identified sources and previous work elements implemented at the site are described in the Workplan. This HASP is applicable to all employees, government employees, contractors, subcontractors, and visitors to the site. This HASP will be used to ensure that adequate site safety practices are used during sample collection activities.

All personnel working at the site must review the HASP and sign an agreement to comply with its requirements and to signify their familiarity with all aspects of the HASP before entering an exclusion zone or a contamination reduction zone. A copy of the HASP Certification is provided in Section 19. All personnel working at the site will be briefed daily by the Site Safety Officer (SSO) and will be required to become familiar with the following sections of this plan:

- Directions to Hospital - Section 17 and Page 3 (map);
- Safety Rules and Personal Hygiene - Appendix A;
- Field Standard Operating Procedures for Use and Decontamination of Personal Protective Equipment (PPE) - Appendix B;
- Heat Stress and Heat Stress Monitoring - Appendix C.

1. Applicable Standards and Goals

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1. Introduction

Figure 1 Hospital Route Map

1. Applicable Standards and Goals

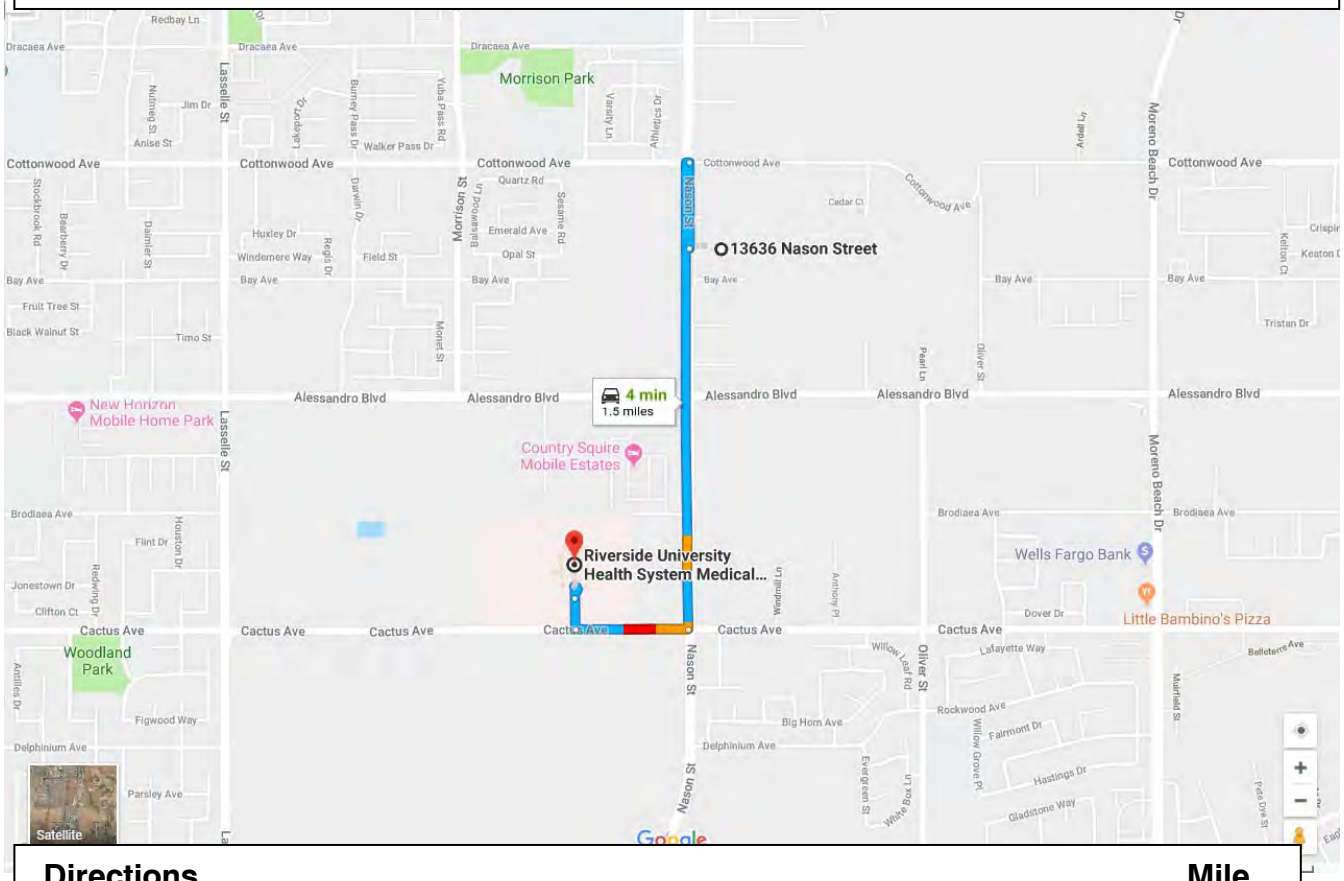
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FIGURE 1
HOSPITAL ROUTE MAP

Starting from: 13636 Nason Street, Moreno Valley, Riverside County, CA

Arriving at: Riverside University Health System Medical Center
26520 Cactus Avenue, Moreno Valley, Riverside County, CA

Distance: 1.5 miles **Approximate Travel Time: 4 minutes**



Directions	Mile
1. Head north on Nason Street towards Cottonwood Avenue	0.2
2. Make a U-turn at Cottonwood Avenue	1.0
3. Turn right onto Cactus Avenue	0.2
4. Turn right	<0.1
5. Continue straight, destination will be on the right	<0.1

2. Site Description

2.1 SITE IDENTIFICATION

The site has been identified by the District as Proposed Moreno Valley Elementary School – Nason Street.

2.2 SITE LOCATION

The site is located at 13636 Nason Street in the City of Moreno Valley, Riverside County, California.

2.3 CURRENT AND HISTORICAL LAND USES

2.3.1 Property Ownership

The site is currently owned by Mr. David Lantz. Mr. Lantz has been the owner of the parcel since 1997 after the death of his father. The parcel has been in the Lantz family since 1896 when it was purchased by Mr. Lantz's grandfather and has been used solely as a citrus orchard by the family.

2.3.2 Business/Manufacturing Activities

The site has been utilized for agricultural purposes from at least 1938 to 2004. Structures have been associated with this site since at least 1901, there is a residential dwelling located on the northwest corner of the site.

2.3.3 Site Climatological Setting

The site is classified as being in climate zone 10 by the California Energy Commission. It is an area that is semi-arid with hot, dry summers and mild winters. The Western Regional Climate Center collected data from Riverside from 1893 to 2016. The mean temperature in the area ranges from a low of 48.6° Fahrenheit (°F) in the winter to a high of 79.5°F in the summer. The average annual precipitation is 10.21 inches per year.

2. Site Description

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3. Roles and Responsibilities

A number of roles are required for the safe and efficient operation of a field team. These roles include Project Director, Project Manager, PlaceWorks Health and Safety Manager, Site Manager, SSO and field personnel. A team member may take on more than one role, but the roles must be clearly assigned and must cover all positions required. The personnel assigned to the various roles and their phone numbers are listed below:

Assignment	Name	Phone Number
Project Director	Dr. Denise Clendening	(909) 989-4449
Project Manager	Dr. Denise Clendening	(909) 989-4449
Health & Safety Manager	Mike Watson	(909) 989-4449
Site Manager	Mike Watson	(909) 989-4449
Site Safety Officer	Mike Watson	(909) 989-4449
Field Personnel	Mike Watson	(909) 989-4449

The following guidelines outline assignment of responsibilities of the field team members.

3.1 PROJECT DIRECTOR

The Project Director is responsible for the overall operation of the project, including safety during field activities. Specific responsibilities include organization of all project work assignments, assigning personnel to specific duties, ensuring that the field team follows health and safety procedures approved by the PlaceWorks Health and Safety Manager, and overall quality assurance/quality control of the project.

3.2 PROJECT MANAGER

The Project Manager will be responsible for the day-to-day progress of the project and will hold review and planning meetings as necessary with all technical staff, during which the current progress, problems encountered, and future direction will be discussed.

3.3 PLACEWORKS HEALTH AND SAFETY MANAGER

The PlaceWorks Health and Safety Manager is responsible for the design and, with assistance from the Project Manager on personnel issues, implementation of the health and safety program for this project. This includes developing a site HASP, ensuring that all onsite workers have met the necessary health and safety training requirements and are knowledgeable about the work they will perform, assigning a qualified SSO to the field team, verifying compliance with all applicable safety and health requirements, and updating equipment and procedures based on new information gathered during the course of work.

3.4 SITE MANAGER

The Site Manager is responsible for the operation of the field team. Responsibilities include organization of field activities, compliance with the provisions of the site Workplan, field documentation and record keeping, quality control of field activities, and communication with the site's correspondent. The Site Manager, along with the SSO, must also ensure that subcontractors and outside observers comply with the HASP.

3.5 SITE SAFETY OFFICER

The SSO works closely with the Site Manager to enforce the provisions of the HASP during field activities. The SSO is responsible for implementing the procedures stipulated in the HASP:

- Evaluating and amending the HASP daily to remedy deficiencies and post entry briefings;
- Determining the levels of personal protection based on observations or changing field conditions;
- Controlling site entry and exit;
- Briefing the field team on the health and safety decontamination procedures required for various field activities;
- Monitoring the field team for signs of stress or exposure;
- Initiating emergency procedures, if necessary;
- Verifying that field team members have met the health and safety requirements for field activities;
- Being available to document and respond to any concerns or complaints made by personnel onsite;
- Documenting unsafe work practices or conditions;
- Documenting any accidents or incidents that result in illness or injury to personnel; and
- Issuing stop work notices if site conditions become unsafe, with conference with the Project Director and/or the PlaceWorks Health and Safety Manager.

3.6 FIELD TECHNICIANS

The field technicians are responsible for complying with the HASP, notifying the SSO of hazardous or potentially hazardous conditions, and carrying out specialized tasks during field operations. These tasks include inspecting, calibrating, maintaining, and using field equipment; performing site characterization activities; maintaining decontamination stations; preparing and decontaminating sampling equipment; collecting and preserving samples; and packaging and shipping samples according to proper chain-of-custody procedures.

3.7 FIELD TEAM SIZE

The size of the field team is determined by the nature of the field activities, the characteristics of the site, the safety hazards involved, and the prescribed levels of safety protection. The field team must be large enough to ensure onsite activities are conducted safely, but not so large as to sacrifice efficiency. PlaceWorks personnel shall be present during all phases of the field activities.

3. Roles and Responsibilities

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4. Training and Medical Monitoring Requirements

Staff and subcontractors participating in the fieldwork must have completed a 40-hour health and safety training course (8 CCR 5192(e), 29 CFR 1910.120(e)(2)) as appropriate for their particular tasks and have annual refresher training. Before personnel arrive onsite, each employer will be responsible for certifying that its employees meet the OSHA training requirements.

Each employee will be familiar with the requirements of the site safety and health plan, and will participate in site activity and safety briefings. Medical surveillance is conducted as a routine program, which meets the requirements of 8 CCR 5192 (f); the medical surveillance program is detailed in Appendix D. There will not be any special medical tests or examinations required for staff involved in this project.

All personnel will be trained to operate their respective equipment, including respiratory protection if site conditions exist where respirators are needed. Under no circumstance will untrained or unqualified personnel operate equipment.

4. Training and Medical Monitoring Requirements

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5. Description of Field Work

The following subsections describe tasks to be performed during the field activities and the hazards associated with each task. Some of the protective measures to be implemented during completion of those operations are also identified.

5.1 SOIL SAMPLING ACTIVITIES

5.1.1 Soil Sampling

Soil samples will be collected following protocols described in the Workplan and the following guidance: DTSC's *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (DTSC 2008). Soil will be collected in glass jars.

5.1.2 Sampling Methods and Procedures

Soil sampling will be conducted using a hand auger. The hand auger will be advanced to the desired depths and the barrel will be retrieved. Observations pertaining to the soil type will be recorded by a field geologist. The soil will be decanted into a pre-cleaned glass jar. Each sample will be labeled with the sample number, sample depth, and the date and time sampled. Samples will be immediately placed in an ice-filled cooler and listed on a chain-of-custody form. Any observation pertaining to potential soil contamination or soil source will be recorded.

Hazards associated with this task include dermal contact with and accidental ingestion of contaminated soil and inhalation of dusts and vapors (i.e. VOCs), noise and lifting. Some of the protective measures to be implemented during soil sampling include the use of chemical-resistant gloves to reduce the hazards associated with soil sampling. Level D PPE will be used when sampling is initiated, but will be upgraded as necessary. The use of a PID for air monitoring will be used (as necessary) primarily for the detection of VOCs and not organochlorine pesticides or metals, which are not detectable with a PID.

Previous surveys indicate that heavy equipment such as drilling or excavation equipment may produce continuous and impact noise at or above the action level of 85 dBA. All site personnel within 25 feet of operating equipment, or near an operation that creates noise levels high enough to impair conversation, shall wear hearing protective devices (either muffs or plugs). All PlaceWorks personnel are in the PlaceWorks Hearing Conservation Program and have had baseline and, where appropriate, annual audiograms. Personnel will wash their hands with soap and water prior to inserting earplugs to avoid initiating ear infections.

The following guidelines will be followed whenever lifting equipment such as portable generators, coolers filled with samples, any other objects that are of odd size or shape, or that weigh over 40 pounds.

- Get help when lifting heavy loads. Portable generators will only be lifted using a two-person lift.

5. Description of Field Work

- When moving heavy objects such as drums or containers, use a dolly or other means of assistance.
- Plan the lift. If lifting a heavy object, plan the route and where to place the object. In addition, plan communication signals to be used (i.e., "1, 2, 3, lift," etc.).
- Wear sturdy shoes in good condition that supply traction when performing lifts.
- Keep your back straight and head aligned during the lift and use your legs to lift the load – do not twist or bend from the waist. Keep the load in front of you – do not lift or carry objects from the side.
- Keeping the heavy part of the load close to your body will help maintain your balance.

6. Chemical Hazards

The presence of chemical hazards at the site has not been confirmed; however, the primary suspected potential constituents of concern associated with the site are metals and organochlorine pesticides. The list of chemicals of concern for the site will be reassessed, as more data becomes available. Brief toxicological profiles of the major constituents of concern are included in Appendix E. Chemical and physical characteristics of these compounds are presented in Table 1.

Potential exposures to these chemicals during field activities include the following:

- Dermal contact with and accidental ingestion of potentially contaminated rinsate and residue during decontamination and sampling; and
- Splash hazards during decontamination.

To protect workers from eye and skin contact, skin absorption, and accidental ingestion of airborne dust, PPE will be used as outlined in Section 8.0.

6.1 HAZARD ASSESSMENT

A literature review was conducted to find ionization potentials (IPs), exposure limits, and concentrations immediately dangerous to life and health (IDLH) for the constituents of concern in environmental media at the site. Exposure limit data are expressed as 8-hour time-weighted averages (TWAs). TWAs promulgated in OSHA regulations are referred to as permissible exposure limits (PELs). The American Conference of Governmental and Industrial Hygienists adopts values for exposure limits that are referred to as threshold limit values.

Exposure limits and the IDLH for the constituents of concern are depicted in Table 1. These data are also used to establish action levels to determine when personnel should upgrade from Level D PPE (i.e., no respiratory protection) to Level C PPE (i.e., full-face air-purifying respirator) and to select the appropriate types of outer garments, gloves, and respirator cartridges. Action levels triggering an upgrade in respiratory protection from Level D to Level C are established by examining exposure limit data and selecting compounds with the lowest PEL.

Site work will be initiated in Level D protection. If unusual odors or symptoms are noted in the field, and engineering controls cannot reduce potential hazards in the breathing zone, the level of protection will be upgraded to Level C. If an upgrade to Level B is required, field activities will stop and the site will be evacuated. If Level B is required, the project will be stopped and the current operating procedures will be assessed by the SSO, the Health and Safety Officer, and the Health and Safety Committee. If it is determined that Level B PPE is required, a subcontractor will be retained to conduct this supervised work.

6. Chemical Hazards

The potential for injuries inherent in operating heavy equipment presents additional hazards, especially because the operator may be wearing restrictive clothing. The use of heavy equipment creates the potential for contact with active utility lines. These utility lines will be located before intrusive activities are conducted and avoided.

7. Physical Hazards

Potential physical hazards associated with this project include, but are not limited to, working around heavy equipment, electrocution, slippery terrain, noise, weather conditions, and heat stress.

7.1 HEAVY EQUIPMENT

It is important that personnel be aware of all operations that are occurring at a work location as well as physical hazards, such as excavations, trenches, or open pits. Personnel will be aware of the position and movement of equipment by identified operational areas. Special precautions, with regard to layout of equipment traffic patterns associated with other vehicles and buildings, will be carefully considered before beginning field activities. Traffic barriers and/or caution barrier tape will be used to delineate the layout and assist in directing traffic flow to reduce risk of vehicle injury. Employees will be notified during daily meetings as to the established traffic patterns of heavy equipment. Whenever heavy equipment operations are conducted in a congested site area, a traffic coordinator designated by the SSO will direct movement of heavy equipment and pedestrians. For non-essential persons, pedestrian traffic will be prohibited where heavy excavation equipment is in operation. Operators will be tasked to watch for employees that might stray into the restricted entry area; site personnel will be required to wear orange safety vests in the vicinity of heavy equipment operation.

7.2 ELECTROCUTION

Electrical power lines above (overhead) and below ground will be identified at the site before to the start of any activities to prevent electrocution. Minimum safe distance will be established by the SSO in areas of overhead and underground power lines. Subcontracted utility locating services will be used as necessary to locate or confirm the presence of suspected underground utilities at drilling or boring locations.

7.3 SLIPPERY TERRAIN, SLIPS, TRIPS, AND FALLS

Slippery and uneven terrain is common and may increase the risk of injuries. Personnel shall wear the appropriate foot protection while onsite. The SSO will monitor site work surfaces for potential trip and fall hazards. Overhead hazards consist of potential contact with falling objects, rigging equipment, or other items in use at the site. Hard hats are required at all times when at the site.

7.4 NOISE

Noise levels around the equipment may exceed a comfortable range; therefore earplugs or equivalent hearing protection devices are required when equipment is operating.

7.5 HEAT STRESS

The potential for heat stress is high given the warm southern California climate and use of protective garments. Heat stress and heat stress monitoring are discussed in Appendix C.

8. Personal Protective Equipment (PPE)

It is anticipated that Level D PPE will be used, with Level C PPE available on stand-by. Level D PPE will consist of the following equipment:

- Long pants and long-sleeved or short-sleeved shirts;
- Steel-toed work boots;
- Nitrile gloves;
- Hard hats, required when heavy equipment is being used and an overhead hazard exists;
- Safety glasses; and
- Hearing protection during heavy equipment operation.

Damaged PPE will be replaced immediately. Backup equipment will be kept onsite for replacement as necessary.

At a minimum, the following PPE will be discarded and replaced daily:

- Nitrile gloves; and
- Disposable type ear plugs.

New gloves will be used to collect each sample. Procedures for using PPE are given in Appendix B.

The level of protection provided by PPE selection may be upgraded or downgraded by the SSO, in conference with the PlaceWorks Health and Safety Manager and/or the Project Director, based on changes in site conditions. When a significant change occurs, the hazards will be reassessed. Some indicators of the need for reassessment are as follows:

- A change in weather conditions;
- Encountering contaminants other than those previously identified;
- A change in ambient levels of contaminants; and
- A change in work scope that affects the degree of contact with contaminants.

Level C PPE will consist of the following equipment:

8. Personal Protective Equipment (PPE)

- Dual-canister full-face air-purifying respirator (NIOSH approved);
- Organic vapor/P100 combination cartridges;
- Tyvek or Saranex-coated coveralls;
- Steel-toed work boots;
- Double layer nitrile;
- Hard hats, required when heavy equipment is being used; and
- Safety glasses.

Particulate respirator cartridges should be changed out when the wearer has difficulty breathing through the cartridges. Chemical gas or vapor respirator cartridges will be changed out at least daily.

- Proper inspection of PPE includes several levels of inspection depending on specific articles of PPE and its frequency of use. The different levels of inspection are as follows:
- Inspection of equipment received from the factory or distributor;
- Inspection of equipment as it is issued to workers;
- Inspection after use or training;
- Periodic inspection of stored equipment; and
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment or when problems with similar equipment arise.

The primary inspection of PPE in use for activities at the site will occur before use and will be conducted by the user. This ensures that the device or article has been inspected by the user and the user is familiar with its use. The SSO will periodically review field technicians' knowledge and execution of inspection guidelines for the various types of PPE in use at the site.

9. Illumination

Nighttime work activities are not anticipated; however, if nighttime work becomes necessary, illumination at the site will be supplemented in order to ensure safe working conditions. Supplemental lighting will be provided by mobile generator powered units.

9. Illumination

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10. Standard Operating Procedures

The standards regarding Safety Rules and Personal Hygiene and Use and Decontamination of PPE are detailed in Appendices A and B, respectively.

Standard operating procedures (SOPs) for equipment will be presented in the Addendum.

10.1 DAILY SAFETY MEETINGS

The SSO will conduct a daily safety meeting to discuss any changes in safety status, safety violations and administrative actions, work assignments, or modifications of procedures with all onsite field personnel. This safety meeting will be scheduled as the first activity of each day. An alternate person may be designated to conduct the briefing at the discretion of the SSO. All personnel present will sign the Daily Attendance sheet.

10.2 DAILY DEBRIEFING MEETINGS

At the end of each workday at the site, the SSO will discuss with the Site Manager or the Project Director, daily progress, technical problems, administrative resolution of disciplinary actions, and monitoring and analytical findings.

In the event that an emergency occurs or other accident that requires immediate attention, and additional safety meeting may be conducted. Non-routine meetings will address any site changes that have safety implications, which must be immediately addressed before work can continue.

10.3 ADMINISTRATIVE ACTION

Observed violations of safety procedures can result in immediate removal of the violator from the site. The Project Director will take administrative action on each violation. In the event of a violation, the nature of the violation, the past record of the violator, and any extenuating circumstances will be reviewed. The SSO and Health and Safety Officer will provide a recommendation to the Project Director regarding administrative actions such as retraining and reassignment, change in clearance status, or permanent dismissal from the site.

10. Standard Operating Procedures

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11. Confined Spaces

No confined space entry is anticipated at the site. A confined space protocol will be developed for Agency review and approval should conditions at the site change.

11. Confined Spaces

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12. Noise Monitoring

Noise may be monitored using a sound level meter (General Radio model 1565B) in areas where heavy equipment is being utilized. Hearing protection devices (HPDs) will be available onsite at all times. Use of HPDs will be required whenever the noise level equals or exceeds 85 dBA; in general, they will be used whenever equipment is operated. Field technicians will be informed on the proper use, maintenance and storage of HPDs. Engineering controls will be utilized as necessary to ensure that noise levels generated by work do not impact residences adjacent to the site.

12. Noise Monitoring

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13. Description of Site Work Zones

The various work zones may be established at the site before commencing any field activities.

Exclusion Zone

All workers who enter the contaminated work area will wear the correct level of protection. The number of workers in this zone will be kept at a minimum.

Contamination Reduction Zone (CRZ)

Decontamination areas for field personnel and heavy equipment will be designated in the CRZ adjacent to the exclusion zone.

Support Zones

The administrative and break areas shall be located in the support zone outside the CRZ and the overall work zone. The support zone will be located upwind from the overall work zone as permitted by site meteorological conditions.

The work areas and site shall be cleared and secured at the end of each workday.

13. Description of Site Work Zones

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14. Decontamination

Decontamination of PPE will take place in the decontamination area identified onsite. Before starting field activities, a decontamination station will be set with one bucket or tub containing a clean water and soap mixture and another bucket or tub containing clean water. All workers and PPE will be decontaminated to prevent the spread of potentially hazardous substances. All workers will wash their hands, arms, and face after removing PPE and before leaving the site. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site. The water (and water with detergent) will be poured onto the ground or into a storm drain. Disposable items will be placed in trash bags for disposal along with other wastes removed from the property. Support vehicles are to be left, to the extent practical, outside the exclusion area so that decontamination will not be necessary. Decontamination procedures are outlined in Appendix B.

14. Decontamination

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15. Emergency Supplies

15.1 FIRE EXTINGUISHERS

A fire extinguisher will be available onsite during field activities. Field technicians will be informed on the proper use of fire extinguishers.

15.2 SPILL CONTROL EQUIPMENT

Accidental spills will be contained with sandbags or commercially available absorbent materials especially designed for spill containment or cleanup.

15. Emergency Supplies

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16. Emergency Contact Information

Emergency response shall be addressed according to the requirements of T8 CCR 5192. If it is determined that the emergency could threaten human health or the environment, the incident will be reported to the proper agencies:

Police/Fire **911**

Department of Toxic Substances Control (714) 484-5300

5796 Corporate Avenue

Cypress, California 90630

Fax: (714) 484-5302

Department of Health Services (916) 445-4171

714/744 P Street

Sacramento, California 95814

The closest hospital is: (951) 486-4000

Riverside University Health System Medical Center

26520 Cactus Avenue

Moreno Valley, California 92555

16. Emergency Contact Information

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17. Directions to the Hospital

Directions (See Figure 1): Start out heading north on Nason Street toward Cottonwood Avenue. Make a U-turn at Cottonwood Avenue and then turn right onto Cactus Avenue. Turn right and continue straight, the destination will be on the right.

17. Directions to the Hospital

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18. Authorized Changes to the Health and Safety Plan

Changes to the HASP are to be documented by completing a Modification of Site Health and Safety Plan form. This completed form must be signed by the Site Safety Officer, the Health and Safety Manager, and the Project Director. A copy of each completed form is to be included with each copy of the HASP and made a part of the project files.

18. Authorized Changes to the Health and Safety Plan

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19. Certification

This HASP has been reviewed and approved by the PlaceWorks Health and Safety Manager. The plan satisfies the requirements of the Occupational Safety and Health Act 1910.120 as implemented by the Health and Safety Committee for hazardous waste site activities.

All PlaceWorks site personnel have read the HASP and are familiar with its provisions.

NAME SIGNATURE DATE

19. Certification

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TABLE 1
OCCUPATIONAL HEALTH GUIDELINES AND TOXICOLOGICAL INFORMATION
Proposed Moreno Valley Elementary School - Nason Street
13636 Nason Street
Moreno Valley, California

Contaminant	OSHA PEL (ppm)	STEL (ppm)	NIOSH REL (ppm)	IDLH (ppm)	Ionization Potential (eV)	Routes of Exposure	Known or Suspected Carcinogen	Symptoms	1997 NIOSH Page Reference
Arsenic	0.010 mg/m^3	n/a	2 mg/m^3 (15-minute period)	5 mg/m^3	n/a	Inh, Ing, Absorption, Contact	Yes	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin	20
Dichlorodiphenyltrichloroethane (DDT)	1 mg/m^3 (skin)	n/a	0.5 mg/m^3	500 mg/m^3	n/a	Inh, Ing, Absorption, Contact	Yes	Irritation to eyes and skin, paresthesia of the tongue, lips, and face, tremor, apprehension, dizziness, confusion, malaise, headache, fatigue, convulsions, paresis of hands, vomiting, potentional occupational carcinogen	88
Aldrin	0.25 mg/m^3 (skin)	n/a	0.25 mg/m^3 (skin)	25 mg/m^3	n/a	Inh, Ing, Absorption, Contact	Yes	Headache, dizziness, nausea, vomiting, malaise, myoclonic jerks of limbs, clonic, tonic convulsions, coma, hematuria, azotemia, potentional occupational carcinogen	8
Toxaphene	0.5 mg/m^3 (skin)	n/a	n/a	200 mg/m^3	n/a	Inh, Ing, Absorption, Contact	Yes	Nausea, confusion, agitation, tremor, convulsions, unconsciousness; dry, red skin; potentional occupational carcinogen	58
Dieldrin	0.25 mg/m^3 (skin)	n/a	0.25 mg/m^3 (skin)	50 mg/m^3	n/a	Inh, Ing, Absorption, Contact	Yes	Headache, dizziness, nausea, vomiting, malaise, sweat, myoclonic limb jerks, clonic, tonic convulsions; coma, potentional occupational carcinogen, in animals: liver, kidney damage	104

ppm - parts per million
mg/m^3 - milligrams per cubic meter
n/a - not applicable

Appendices

Appendix

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Appendix A

Safety Rules and Personal Hygiene

1. Remove all facial hair that interferes with a satisfactory fit of respiratory protective equipment.
2. Do not wear contact lenses while wearing full-face respirators.
3. Do not take prescribed drugs unless specifically approved by a physician. Notify the SSO that prescription medication is being taken.
4. In the work zone, do not eat, drink, smoke, chew gum or tobacco, or engage in any other practice that increases the probability of hand-to-mouth transfer or ingestion of material.
5. Wash hands and face thoroughly after leaving the work area and before eating, drinking, or any other activities.
6. Thoroughly wash entire body as soon as possible after removing Level C protective garments.
7. Whenever possible, avoid contact with contaminated or suspected contaminated surfaces.

Appendix B

Field Standard Operating Procedures for Use and Decontamination of Personal Protective Equipment

1. Park vehicles outside the site boundaries.

2. During the pre-work safety meeting, the SSO will provide the following information:
   A. a description of the site and known problem areas
   B. the level of protection required
   C. emergency medical information
   D. the locations of the first aid kit and fire extinguisher

3. Use the nearest lavatory.

4. Lay out and check safety gear.

5. Check and don Level D PPE.

6. For work in Level C PPE, put on safety gear in the following order:
   A. Coveralls
   B. Steel-toed work boots
   C. Connect suit and boots with tape
   D. Outer booties, if used
   E. Air purifying respirators (APRs), if required

7. For work in Level C PPE, put on APRs as follows:
   A. Inspect.
      (1) Inspect before each use to ensure that they have been cleaned adequately.
      (2) Check material conditions for signs of pliability, deterioration, or distortion.
      (3) Examine cartridges and ensure that they are the correct type for the intended use, that the expiration date has not passed, and that they have not been opened or used previously.
      (4) Check face shields for cracks or fogginess.
   B. Loosen all harness strap adjustments.
   C. Place chin in chin cup and draw back evenly on strap adjustments - the two bottom straps first, then the two top straps, and the center top strap last.
   D. Check that the respirator is centered evenly on the face and that the straps are not uncomfortably tight.

E. Check for leaks or proper facial seals.
   (1) To conduct a negative-pressure test, close the inlet part with the palm of the hand so it does not pass air, and gently inhale for about 10 seconds. Any inward rush of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.
   (2) To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

8. Put on the rest of the gear in the following order:
   A. Raise hood
   B. Hard hat, if necessary
   C. Surgical gloves
   D. Outer gloves
   E. Connect gloves and suit with tape

9. Select a buddy to act as a safety backup.

10. Check your buddy's equipment and have your buddy check yours for rips, tears, or malfunctions. Pay special attention to respirators, making sure that seals are good and that cartridges are securely in place.

11. If any equipment or gear gets damaged or if your suit tears badly, GO BACK.

12. If you experience physical discomfort, breathing difficulties, light-headedness, dizziness, or other abnormalities, GO BACK.

13. When you return, have your buddy check for external accumulation of contamination and remove it. Also check gear for damage.

14. Decontamination will be performed in steps as follows (as appropriate for the PPE being utilized):

    Step 1 - Segregated Equipment Drop: Deposit equipment used onsite (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) in different containers with plastic liners. Each may be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination. This equipment may be reused if properly decontaminated.

    Equipment: various sizes of containers
    plastic drop cloths

Step 2 - Boot Cover and Outer Glove Wash and Rinse: (Optional - will be used at the Site Safety Officer's discretion.)

Equipment:
- spray bottle/container with nozzle
- two wash basins or tubs
- scrub brush
- water
- Liqui-nox nonphosphate soap solution (1%)

Step 3 - Tape Removal: Remove tape around boots and gloves, and deposit in container with plastic liner. Remove boot covers, then outer gloves, and place them in the container.

Equipment:
- container (30-50 gallons)
- plastic liners
- folding chairs

Step 4 - Safety Boot Wash and Rinse: (Optional - will be used at discretion of field team members.)

Equipment:
- two wash basins or tubs
- scrub brush
- water
- Liqui-nox solution (1%)

Step 5 - Protective Coverall Removal: With the assistance of a helper, remove protective coverall. Deposit in container with plastic liner.

Equipment:
- container (30-50 gallons)
- folding chairs
- plastic liners

Step 6 - Respirator Removal: Remove facepiece. Avoid touching face with gloves. If work is completed for the day, discard cartridges in lined container, and wash and rinse respirator.

Equipment:
- container (30-50 gallons)
- plastic liners

Step 7 - Inner Glove Removal: Remove inner gloves and deposit in container with plastic liner.

Equipment:
- container (20-30 gallons)
- plastic liners

15. Respirators will be cleaned daily by hand washing with MSA cleaner-sanitizer solution followed by a thorough rinse and air drying. NEVER ALLOW A RESPIRATOR TO DRY WITH THE STRAPS PLACED FORWARD ACROSS THE FACESHIELD BECAUSE THIS MAY CAUSE CHANGES IN THE FACE-TO-RESPIRATOR SEAL SURFACE. The specific procedures to be employed are as follows:

A. Remove all cartridges (canisters) and filters plus gaskets and seals not

permanently affixed to their seats.

B. Loosen harness adjustment straps.
C. Remove exhalation valve cover.
D. Remove inhalation and exhalation valves.
E. Remove protective faceshield cover.
F. Wash facepiece in MSA cleaner/sanitizer powder mixed with warm water, preferably at a temperature of 120□ F. Wash components separately from facepiece. Heavy soil may be removed from the facepiece surface using a medium-soft handbrush.
G. Remove all parts from the wash solution, and rinse twice in clean, warm water.
H. Air dry all parts in a designated clean area.
I. Pat facepieces, valves, and seats to remove any remaining soap residue, water, or other foreign material with a clean, damp, lint-free cloth.
J. Reassemble respirator.
K. Place respirator in a plastic bag and the respirator box or otherwise store the respirator to prevent exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact.

16. Investigation-derived waste material will be handled as follows:
    A. Used PPE and disposable equipment will be double bagged and placed in a municipal refuse dumpster on site. These wastes are not considered hazardous and can be sent to a municipal landfill. Any PPE and disposable equipment that is to be disposed of which can still be reused will be rendered inoperable before disposal in the refuse dumpster.
    B. Wash and rinse waters from personal and equipment decontamination will be poured onto the ground or into a storm drain.
    C. Soil cuttings generated during the subsurface sampling will be placed back into the soil borings from which the samples were obtained. Any remaining soil cuttings will be spread around the sampling location.

Appendix C

Heat Stress and Heat Stress Monitoring

Heat is one of the most common (and potentially serious) illnesses at hazardous waste sites where PPE is worn; therefore, regular monitoring and other preventive precautions are vital. Shelter from the sun will be provided during rest periods. Below is a list of the signs and symptoms of heat stress. Initial work schedules will be approximately 90 minutes of work followed by 15 minutes of rest. Work intervals will be adjusted to shorter periods based on the assessment of the SSO. Monitoring for heat stress will be conducted by visual observation by the individual team members.

Signs and Symptoms of Heat Stress

- **Heat rash** may result from continuous exposure to heat or humid air.

- **Heat cramps** are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:
  - muscle spasms
  - pain in the hands, feet, and abdomen

- **Heat exhaustion** occurs from increased stress on various body organs, including inadequate blood circulation caused by cardiovascular insufficiency or dehydration. Signs and symptoms include:
  - pale, cool, moist skin
  - heavy sweating
  - dizziness
  - nausea
  - fainting

- **Heat stroke** is the most serious form of heat stress. Temperature regulation fails, and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms include:
  - red, hot, usually dry skin
  - lack of or reduced perspiration
  - nausea
  - dizziness and confusion
  - strong, rapid pulse
  - coma

First-aid remedies for heat stress and heat stroke includes removing the worker to a cool place, providing cool water or a commercial sport drink, loosen tight clothing, and call for an ambulance if victim vomits or starts to loose consciousness.

Appendix D

Medical Monitoring Program

The workers most likely to be exposed to contaminated materials at the site are sampling and inspection personnel. These personnel are included in this Medical Monitoring Program.

The purposes of the Medical Monitoring Program are to identify any illness or problem that would put an employee at an unusual risk from exposures; to ensure that each employee can use negative-pressure respirators safely and withstand heat or cold stress; and to establish and maintain a medical data base for employees to monitor any abnormalities that may be related to work exposure and that could increase injury risk for the employee or others in the performance of job functions. The Medical Monitoring Program includes:

- A baseline physical examination;
- A medical determination of fitness of duty, including work restrictions after any job-related injury or illness or non job-related absence lasting more than three working days;
- The review of each site-specific Health and Safety Plan and potential exposure list to determine the need for specific biological and medical monitoring; and
- Annual and exit physical examinations with attention given to specific exposures or symptoms.

Baseline Physical Examination

A Baseline Physical Examination will be performed on each employee engaged in hazardous waste activities. The purposes of this examination are to identify any illness or problem that would put an employee at unusual risk from certain exposures; to certify the safe use of negative-pressure respirators (OSHA Safety and Health Standard 29 CFR 1910.134); and to develop a database for the assessment of exposure-related events detected through periodic medical monitoring. Variable data, such as age, sex, race, smoking, prior employment, and exposure history, that may have a bearing on the occurrence of subsequent events after employment begins will be gathered.

The content of the Baseline Physical Examination will include:

- Medical, occupational, and fertility histories;
- A physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems;
- An electrocardiogram;
- PA and lateral chest x-rays;
- A pulmonary function test (FEV1, FVC, FEV 25-75);
- An audiogram;

- A multi-chemistry blood panel, including kidney and liver function tests, CBC with
- differential, and urinalysis;
- Tests deemed necessary by symptoms or exposure history;
- A red blood cell cholinesterase; and
- Physical parameters, including blood pressure and visual acuity testing.

Annual Physical Examination
An examination and updated occupational history will be performed on an annual basis during the anniversary month of the baseline physical examination. The Annual Physical Examination serves to identify and prevent illness caused by cumulative exposure to toxic substances.

The Annual Physical Examination will include:
- A personal work history (based on specific project histories);
- A physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems;
- Pulmonary function test (FEV1, FVC, FEV 25-75);
- A multi-chemistry blood panel, including kidney and liver function test;
- An audiogram;
- Tests deemed necessary by symptoms or exposure history; and
- An optional wellness profile.

Return to Work Examination
Any job-related illness or injury will be followed by a medical examination to determine fitness for duty or possible job restrictions based on the physical findings of the medical examiner. A similar examination will be performed following three missed workdays caused by a non job-related illness or injury requiring medical intervention.

Exit Physical Examination
The content of the Exit Physical Examination will include:
- a personal work history (based on specific project histories);
- medical, exposure, and fertility histories;
- a physical examination, stressing neurological, cardiopulmonary, musculoskeletal, and skin systems;
- a pulmonary function test (FEV1, FVC, FEV 25-75);
- an electrocardiogram;
- PA and lateral chest x-rays;
- an audiogram;
- a multi-chemistry blood panel, including kidney and liver function tests, CBC with differential, and urinalysis;
- tests deemed necessary by symptoms or exposure history;
- a red blood cell cholinesterase; and
- physical parameters, including blood pressure and visual acuity testing.

Appendix E

Properties of Materials and Toxicological Profiles

Chromium (Cr III and Cr VI)

The permissible exposure limit (PEL) for chrome is 0.5 mg/m^3, which is also the recommended exposure limit (REL) established by the National Institute for Occupational Safety and Health (NIOSH). The Immediately Dangerous to Life or Health (IDLH) concentration for this substance is 25 mg/m^3.

The appearance and odor of this substance varies depending on the type of chrome compound. Symptoms of exposure to chrome may include irritation of the skin and eyes. If splashed in the eyes, irrigate immediately. For dermal exposure, wash with soap and water immediately. If swallowed, immediately seek medical attention. If victim stops breathing after exposure to vapors, begin artificial respiration.

Arsenic

The PEL for arsenic is 0.010 mg/$m^{3.}$ NIOSH has established an REL, based on a 15-minute exposure period, of 2 mg/m^3. The IDLH concentration for this substance is 5 mg/m^3.

The appearance and odor of arsenic varies depending upon the specific organic arsenic compound. Routes of exposure include inhalation, ingestion, and contact. The skin, respiratory system, kidneys, central nervous system (CNS), liver, GI tract, and reproductive system are all target organs or chronic exposure.

Lead

The PEL for lead is 0.050 mg/m^3. NIOSH has established an REL of 0.100 mg/m3. The IDLH concentration for this substance is 100 mg/m^3.

A heavy, ductile, soft, gray solid, lead is also known as lead metal and plumbum. A person can be exposed to lead contamination by inhalation, ingestion, or contact. The target organs for lead include eyes, GI tract, CNS, blood, and gingival tissue.

Symptoms of lead exposure include weakness, lassitude, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; ankle or wrist paralysis, encephalopathy; kidney disease; irritated eyes; and hypotension. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

Dichlorodiphenyltrichloroethane (DDT)

The PEL for DDT is 1 mg/m^3. NIOSH has established an REL of 0.5 mg/m^3. The IDLH concentration for this substance is 500 mg/m^3.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to DDT include irritation to eyes and skin, paresthesia of the tongue, lips, and face, tremor, apprehension, dizziness, confusion, malaise, headache, fatigue, convulsions, and vomiting. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

Aldrin

The PEL for aldrin is 0.25 mg/m^3. NIOSH has established an REL of 0.25 mg/m^3. The IDLH concentration for this substance is 25 mg/m^3.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to aldrin include headache, dizziness, nausea, vomiting, malaise, and coma. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

Toxaphene

The PEL for toxaphene is 0.5 mg/m^3. The IDLH concentration for this substance is 200 mg/m^3.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to toxaphene include nausea, confusion, agitation, temor, convulsions, dry, red skin, and unconsciousness. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

Dieldrin

The PEL for dieldrin is 0.25 mg/m^3. NIOSH has established an REL of 0.25 mg/m3. The IDLH concentration for this substance is 50 mg/m^3.

Routes of exposure include inhalation, ingestion, absorption, and contact. Symptoms of exposure to dieldrin include headache, dizziness, nausea, vomiting, sweat, and coma. If eye contact occurs, the eyes should be washed immediately with large amounts of water. For dermal contact, remove any penetrated clothing and immediately flush the contaminated skin with soap and water. If this chemical is inhaled in large quantities, move to fresh air at once. Perform mouth-to-mouth resuscitation if breathing has stopped. Keep the person warm and resting. For any of the above or if the chemical has been swallowed, seek medical attention promptly.

Appendix F

Site Safety Officer Responsibilities

An SSO will be designated. The responsibilities of the SSO will include the following:

- briefing personnel on the hazards at the site, the standard operating procedures to be employed, and emergency procedures;
- conducting onsite health monitoring;
- coordinating access control and site security, including responsibility for protection of third parties, such as visitors or the surrounding community;
- monitoring work practices and decontamination to ensure that required procedures are being followed;
- being available to document and respond to any concerns or complaints made by onsite personnel;
- documenting unsafe work practices or conditions;
- documenting any accidents or incidents that result in illness or injury to personnel; and
- evaluating and amending the HASP daily to remedy deficiencies and post entry briefings.

Appendix G

Authorized Changes to HASP

Insert the following changes and replace affected pages

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

_____ _____
Site Safety Officer Date

_____ _____
Project Director Date

References

U.S. Department of Health and Human Services, 1997. NIOSH Pocket Guide to Chemical Hazards. Washington, DC.

Appendix E. Laboratory Reports

Appendix

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 07/18/2018 13:45:13
Laboratory Job No. (Certificate of Analysis No.)	1807-00068
Project Name / No.	PROPOSED ELEM. SCHOOL
Dates Sampled (from/to)	07/10/18 To 07/10/18
Dates Received (from/to)	07/10/18 To 07/10/18
Dates Reported (from/to)	07/18/18 To 7/18/2018
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Other Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

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Laboratory Job# 1807-00068

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
B-5@5.0'	C13-C22	**37**		mg/Kg	10	B-5@5.0'	C23-C40	**20**		mg/Kg	20
COMPOSITE: B-11@0.5', B-15@0	4,4'-DDE	**0.22**		mg/Kg	0.010	COMPOSITE: B-11@0.5', B-15@0	4,4'-DDT	**0.13**		mg/Kg	0.010
COMPOSITE: B-11@0.5', B-15@0	Dieldrin	**0.015**		mg/Kg	0.0020	COMPOSITE: B-11DUP@0.5', B-1	4,4'-DDE	**0.28**		mg/Kg	0.040
COMPOSITE: B-11DUP@0.5', B-1	4,4'-DDT	**0.13**		mg/Kg	0.040	COMPOSITE: B-11DUP@0.5', B-1	Dieldrin	**0.0090**		mg/Kg	0.0020
COMPOSITE: B-13@0.5', B-14@0	4,4'-DDE	**0.078**		mg/Kg	0.0020	COMPOSITE: B-13@0.5', B-14@0	4,4'-DDT	**0.025**		mg/Kg	0.0020
COMPOSITE: B-13@0.5', B-14@0	Dieldrin	**0.010**		mg/Kg	0.0020	COMPOSITE: B-6@0.5', B-12@0.	4,4'-DDE	**0.30**		mg/Kg	0.010
COMPOSITE: B-6@0.5', B-12@0.!	4,4'-DDT	**0.34**		mg/Kg	0.010	COMPOSITE: B-6@0.5', B-12@0.	Dieldrin	**0.033**		mg/Kg	0.0020
COMPOSITE: B-7@0.5', B-8@0.5'	4,4'-DDE	**0.060**		mg/Kg	0.010	COMPOSITE: B-7@0.5', B-8@0.5	4,4'-DDT	**0.088**		mg/Kg	0.0020
COMPOSITE: B-7@0.5', B-8@0.5'	Dieldrin	**0.017**		mg/Kg	0.0020	COMPOSITE: B-7@0.5', B-8@0.5	Endrin Aldehyde	**0.023**		mg/Kg	0.0020
COMPOSITE: B-1@0.5', B-2@0.5'	4,4'-DDE	**0.070**		mg/Kg	0.010	COMPOSITE: B-1@0.5', B-2@0.5	4,4'-DDT	**0.050**		mg/Kg	0.0020
COMPOSITE: B-1@0.5', B-2@0.5'	Chlordane	**0.023**		mg/Kg	0.010	COMPOSITE: B-1@0.5', B-2@0.5	Dieldrin	**0.0081**		mg/Kg	0.0020
COMPOSITE: B-1@0.5', B-2@0.5'	Endrin Aldehyde	**0.016**		mg/Kg	0.0020	COMPOSITE: B-20@0.5', B-21@0	4,4'-DDE	**0.080**		mg/Kg	0.0020
COMPOSITE: B-20@0.5', B-21@0	4,4'-DDT	**0.063**		mg/Kg	0.0020	COMPOSITE: B-20@0.5', B-21@0	Chlordane	**0.16**		mg/Kg	0.050
COMPOSITE: B-20@0.5', B-21@0	Dieldrin	**0.011**		mg/Kg	0.0020	COMPOSITE: B-20@2.5', B-21@2	4,4'-DDD	**0.030**		mg/Kg	0.0020
COMPOSITE: B-20@2.5', B-21@2	4,4'-DDE	**0.0043**		mg/Kg	0.0020	COMPOSITE: B-20@2.5', B-21@2	Chlordane	**0.032**		mg/Kg	0.010
COMPOSITE: B-25@0.5', B-27@0	4,4'-DDE	**0.091**		mg/Kg	0.0020	COMPOSITE: B-25@0.5', B-27@0	4,4'-DDT	**0.10**		mg/Kg	0.0020
COMPOSITE: B-25@0.5', B-27@0	Chlordane	**0.046**		mg/Kg	0.010	COMPOSITE: B-25@0.5', B-27@0	Dieldrin	**0.0094**		mg/Kg	0.0020
COMPOSITE: B-25@2.5', B-27@2	4,4'-DDE	**0.0045**		mg/Kg	0.0020	COMPOSITE: B-25DUP@0.5', B-2	4,4'-DDE	**0.090**		mg/Kg	0.010
COMPOSITE: B-25DUP@0.5', B-2	4,4'-DDT	**0.12**		mg/Kg	0.010	COMPOSITE: B-25DUP@0.5', B-2	Chlordane	**0.042**		mg/Kg	0.010
COMPOSITE: B-25DUP@0.5', B-2	Dieldrin	**0.0080**		mg/Kg	0.0020						

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1807-00068

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **B-18@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1.0	1.00	07/16/18	TLB
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	60		%REC	EPA 8015B		50-150	07/14/18	JEN
Sample: 002 **B-15@0.5'**					Date & Time Sampled:		07/10/18 @ 8:17	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1.0	1.00	07/16/18	TLB
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	70		%REC	EPA 8015B		50-150	07/14/18	JEN
Sample: 003 **B-15DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 8:18	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1.0	1.00	07/16/18	TLB

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Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 **B-19@0.5'**					Date & Time Sampled:		07/10/18 @ 9:28	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1.0	1.00	07/16/18	TLB
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	65		%REC	EPA 8015B		50-150	07/14/18	JEN
Sample: 005 **B-19@5.0'**					Date & Time Sampled:		07/10/18 @ 9:32	
Sample Matrix: **Soil**								
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	69		%REC	EPA 8015B		50-150	07/14/18	JEN
Sample: 006 **B-5@0.5'**					Date & Time Sampled:		07/10/18 @ 9:56	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	<0.500		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 007 **B-5@5.0'**					Date & Time Sampled:		07/10/18 @ 10:00	
Sample Matrix: **Soil**								
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN

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Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 **B-5@5.0'**					Date & Time Sampled:		07/10/18 @ 10:00	
Sample Matrix: **Soil**								
.....continued								
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	**37**		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	**20**		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	64		%REC	EPA 8015B		50-150	07/14/18	JEN
Sample: 008 **B-9@5.0'**					Date & Time Sampled:		07/10/18 @ 10:35	
Sample Matrix: **Soil**								
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/17/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/17/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	62		%REC	EPA 8015B		50-150	07/17/18	JEN
Sample: 009 **B-10@0.5'**					Date & Time Sampled:		07/10/18 @ 10:43	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1.0	1.00	07/16/18	TLB
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	108		%REC	EPA 8015B		50-150	07/14/18	JEN

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Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 010 **B-10@5.0'**					Date & Time Sampled:		07/10/18 @ 10:47	
Sample Matrix: **Soil**								
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	72		%REC	EPA 8015B		50-150	07/14/18	JEN
Sample: 011 **B-10DUP@5.0'**					Date & Time Sampled:		07/10/18 @ 10:48	
Sample Matrix: **Soil**								
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/17/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/17/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	64		%REC	EPA 8015B		50-150	07/17/18	JEN
Sample: 012 **B-2@0.5'**					Date & Time Sampled:		07/10/18 @ 11:36	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Arsenic	<1.00		mg/Kg	EPA 6010B	1.0	1.00	07/16/18	TLB
[TPH Gasoline C4-C12]								
Gasoline (C4-C12)	<0.20		mg/Kg	EPA 8015M	1.0	0.20	07/12/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3550B	1.0		07/13/18	AR
C13-C22	<10		mg/Kg	EPA 8015B	1.0	10	07/14/18	JEN
C23-C40	<20		mg/Kg	EPA 8015B	1.0	20	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	71		%REC	EPA 8015B		50-150	07/14/18	JEN

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CERTIFICATE OF ANALYSIS

1807-00068

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 013 **B-26@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		07/10/18 @ 12:13	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**49.4**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 014 **B-28@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		07/10/18 @ 12:25	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**47.3**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 015 **B-20@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		07/10/18 @ 12:50	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**7.63**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 016 **B-21@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		07/10/18 @ 12:57	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**11.0**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 017 **B-23@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		07/10/18 @ 13:04	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**29.2**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 018 **B-24@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		07/10/18 @ 13:11	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**18.9**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB

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Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 019 **B-25@0.5'**					Date & Time Sampled:		07/10/18 @ 13:18	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**25.7**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 020 **B-25DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 13:19	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**29.1**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 021 **B-27@0.5'**					Date & Time Sampled:		07/10/18 @ 13:25	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**30.2**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 022 **B-27DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 13:26	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**9.84**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 023 **B-29@0.5'**					Date & Time Sampled:		07/10/18 @ 13:31	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**121**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 024 **B-29DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 13:32	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**120**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB

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Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 025 **B-30@0.5'**					Date & Time Sampled:		07/10/18 @ 13:42	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**214**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 026 **B-32@0.5'**					Date & Time Sampled:		07/10/18 @ 13:47	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**13.8**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 027 **B-31@0.5'**					Date & Time Sampled:		07/10/18 @ 13:52	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/16/18	TLB
Lead	**26.2**		mg/Kg	EPA 6010B	1.0	0.500	07/16/18	TLB
Sample: 028 **EB071018**					Date & Time Sampled:		07/10/18 @ 14:10	
Sample Matrix: **Aqueous**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3010A	1.0		07/16/18	TLB
Arsenic	<0.0200		mg/L	EPA 6010B	1.0	0.0200	07/16/18	TLB
Lead	<0.0200		mg/L	EPA 6010B	1.0	0.0200	07/16/18	TLB
[TPH Gasoline]								
Gasoline (C4-C12)	<50		ug/L	EPA 8015B	1.0	50	07/13/18	JEN
[Extractable Hydrocarbons]								
Extraction	Complete			EPA 3510C	1.0		07/14/18	JEN
C13-C22	<0.40		mg/L	EPA 8015B	1.0	0.40	07/14/18	JEN
C23-C40	<0.80		mg/L	EPA 8015B	1.0	0.80	07/14/18	JEN
[Surrogate]								
o-Terphenyl (OTP)	69		%REC	EPA 8015B		50-150	07/14/18	JEN
[Pesticides]								
Sep Funnel LLE	Complete			EPA 3510C	1.0		07/12/18	AR

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Date Reported	07/18/18
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Cust #	P135
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Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 028 **EB071018**					Date & Time Sampled:		07/10/18 @ 14:10	
Sample Matrix: **Aqueous**								
.....continued								
Aldrin	<0.040		µg/L	EPA 8081A	1.0	0.040	07/12/18	JEN
alpha-BHC	<0.030		µg/L	EPA 8081A	1.0	0.030	07/12/18	JEN
beta-BHC	<0.060		µg/L	EPA 8081A	1.0	0.060	07/12/18	JEN
delta-BHC	<0.090		µg/L	EPA 8081A	1.0	0.090	07/12/18	JEN
gamma-BHC	<0.040		µg/L	EPA 8081A	1.0	0.040	07/12/18	JEN
Chlordane	<0.50		µg/L	EPA 8081A	1.0	0.50	07/12/18	JEN
4,4'-DDD	<0.050		µg/L	EPA 8081A	1.0	0.050	07/12/18	JEN
4,4'-DDE	<0.050		µg/L	EPA 8081A	1.0	0.050	07/12/18	JEN
4,4'-DDT	<0.050		µg/L	EPA 8081A	1.0	0.050	07/12/18	JEN
Dieldrin	<0.020		µg/L	EPA 8081A	1.0	0.020	07/12/18	JEN
Endosulfan I	<0.050		µg/L	EPA 8081A	1.0	0.050	07/12/18	JEN
Endosulfan II	<0.040		µg/L	EPA 8081A	1.0	0.040	07/12/18	JEN
Endosulfan Sulfate	<0.10		µg/L	EPA 8081A	1.0	0.10	07/12/18	JEN
Endrin	<0.050		µg/L	EPA 8081A	1.0	0.050	07/12/18	JEN
Endrin Aldehyde	<0.10		µg/L	EPA 8081A	1.0	0.10	07/12/18	JEN
Endrin Ketone	<0.50		µg/L	EPA 8081A	1.0	0.50	07/12/18	JEN
Heptachlor	<0.030		µg/L	EPA 8081A	1.0	0.030	07/12/18	JEN
Heptachlor Epoxide	<0.080		µg/L	EPA 8081A	1.0	0.080	07/12/18	JEN
Methoxychlor	<0.040		µg/L	EPA 8081A	1.0	0.040	07/12/18	JEN
Toxaphene	<0.50		µg/L	EPA 8081A	1.0	0.50	07/12/18	JEN
[Surrogates]								
Tetrachloro-m-xylene	64		%REC	EPA 8081A/8082		50-150	07/12/18	JEN
Decachlorobiphenyl	88		%REC	EPA 8081A/8082		50-150	07/12/18	JEN
Sample: 029 **COMPOSITE: B-11@0.5', B-15@0.5', B-16@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR

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Project: PROPOSED ELEM. SCHOOL

Date Reported 07/18/18
Date Received 07/10/18
Invoice No. 83011
Cust # P135
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 029 **COMPOSITE: B-11@0.5', B-15@0.5', B-16@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.22**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
4,4'-DDT	**0.13**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
Dieldrin	**0.015**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	96		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	150		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 030 **COMPOSITE: B-11DUP@0.5', B-15DUP@0.5', B-16DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR

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Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
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Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 030 **COMPOSITE: B-11DUP@0.5', B-15DUP@0.5', B-16DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.28**		mg/Kg	EPA 8081A	20.0	0.040	07/17/18	AR
4,4'-DDT	**0.13**		mg/Kg	EPA 8081A	20.0	0.040	07/17/18	AR
Dieldrin	**0.0090**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	59		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	111		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 031 **COMPOSITE: B-13@0.5', B-14@0.5', B-17@0.5', B-18@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.078**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDT	**0.025**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR

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CERTIFICATE OF ANALYSIS

1807-00068

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported 07/18/18
Date Received 07/10/18
Invoice No. 83011
Cust # P135
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 031 **COMPOSITE: B-13@0.5', B-14@0.5', B-17@0.5', B-18@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
Dieldrin	**0.010**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	79		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	113		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 032 **COMPOSITE: B-6@0.5', B-12@0.5', B-19@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.30**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
4,4'-DDT	**0.34**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
Dieldrin	**0.033**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR

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1807-00068

PLACEWORKS
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2850 INLAND EMPIRE BLVD.
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ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 032 **COMPOSITE: B-6@0.5', B-12@0.5', B-19@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	76		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	150		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 033 **COMPOSITE: B-7@0.5', B-8@0.5', B-9@0.5', B-10@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.060**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
4,4'-DDT	**0.088**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Dieldrin	**0.017**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	**0.023**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR

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Project: PROPOSED ELEM. SCHOOL

Date Reported 07/18/18
Date Received 07/10/18
Invoice No. 83011
Cust # P135
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 033 **COMPOSITE: B-7@0.5', B-8@0.5', B-9@0.5', B-10@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	69		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	126		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 034 **COMPOSITE: B-1@0.5', B-2@0.5', B-3@0.5', B-4@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	**0.023**		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.070**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
4,4'-DDT	**0.050**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Dieldrin	**0.0081**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	**0.016**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR

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ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 034 **COMPOSITE: B-1@0.5', B-2@0.5', B-3@0.5', B-4@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	70		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	64		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 035 **COMPOSITE: B-20@0.5', B-21@0.5', B-22@0.5', B-23@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	**0.16**		mg/Kg	EPA 8081A	5.0	0.050	07/17/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.080**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDT	**0.063**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Dieldrin	**0.011**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								

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Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 035 **COMPOSITE: B-20@0.5', B-21@0.5', B-22@0.5', B-23@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
Tetrachloro-m-xylene	63		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	101		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 036 **COMPOSITE: B-20@2.5', B-21@2.5', B-22@2.5', B-23@2.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	**0.032**		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	**0.030**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.0043**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	73		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	117		%REC	EPA 8081A/8082		50-150	07/13/18	AR

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CERTIFICATE OF ANALYSIS

1807-00068

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 037 **COMPOSITE: B-25@0.5', B-27@0.5', B-28@0.5', B-29@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	**0.046**		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.091**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDT	**0.10**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Dieldrin	**0.0094**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	68		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	97		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 038 **COMPOSITE: B-25@2.5', B-27@2.5', B-28@2.5', B-29@2.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR

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CERTIFICATE OF ANALYSIS

1807-00068

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 038 **COMPOSITE: B-25@2.5', B-27@2.5', B-28@2.5', B-29@2.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
.....continued								
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.0045**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	101		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	150		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Sample: 039 **COMPOSITE: B-25DUP@0.5', B-27DUP@0.5', B-28DUP@0.5', B-29DUP@0.5'**					Date & Time Sampled:		07/10/18 @ 7:36	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/12/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR

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1807-00068

PLACEWORKS
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2850 INLAND EMPIRE BLVD.
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ONTARIO, CA 91764

Project: PROPOSED ELEM. SCHOOL

Date Reported	07/18/18
Date Received	07/10/18
Invoice No.	83011
Cust #	P135
Permit Number	
Customer P.O.	

Sample: 039 **COMPOSITE: B-25DUP@0.5', B-27DUP@0.5', B-28DUP@0.5', B-29DUP@0.5'**
Sample Matrix: Soil
Date & Time Sampled: 07/10/18 @ 7:36

.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Chlordane	**0.042**		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
4,4'-DDE	**0.090**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
4,4'-DDT	**0.12**		mg/Kg	EPA 8081A	5.0	0.010	07/17/18	AR
Dieldrin	**0.0080**		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/13/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/13/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/13/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/13/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/13/18	AR
[Surrogates]								
Tetrachloro-m-xylene	71		%REC	EPA 8081A/8082		50-150	07/13/18	AR
Decachlorobiphenyl	77		%REC	EPA 8081A/8082		50-150	07/13/18	AR

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

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QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

1807-00068

PLACEWORKS
ONTARIO, CA 91764

Date Reported	**07/18/2018**
Date Received	**07/10/2018**
Date Sampled	**07/10/2018**
Invoice No.	**83011**
Customer #	**P135**
Customer P.O.	

Project: PROPOSED ELEM. SCHOOL

Method # EPA 6010B

QC Reference # 74901 **Date Analyzed:** 7/16/2018 **Technician:** TLB

Samples 001 002 003 004 006 009

Results

	LCS %REC	LCS %DUP	LCS %RPD
Arsenic	103	102	0.8
Lead	100	100	0.0

Control Ranges

LCS %REC	LCS %RPD
75 - 125	0 - 20
75 - 125	0 - 20

QC Reference # 74908 **Date Analyzed:** 7/16/2018 **Technician:** TLB

Samples 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027

Results

	LCS %REC	LCS %DUP	LCS %RPD
Arsenic	103	100	3.1
Lead	102	101	1.1

Control Ranges

LCS %REC	LCS %RPD
75 - 125	0 - 20
75 - 125	0 - 20

QC Reference # 74911 **Date Analyzed:** 7/16/2018 **Technician:** TLB

Samples 028

Results

	LCS %REC	LCS %DUP	LCS %RPD
Arsenic	106	106	0.1
Lead	103	104	0.8

Control Ranges

LCS %REC	LCS %RPD
75 - 125	0 - 20
75 - 125	0 - 20

Method # EPA 8015B

QC Reference # 74885 **Date Analyzed:** 7/13/2018 **Technician:** JEN

Samples 028

Results

	LCS %REC
Gasoline (C4-C12)	107

Control Ranges

LCS %REC
70 - 130

QC Reference # 74931 **Date Analyzed:** 7/17/2018 **Technician:** JEN

Samples 001 002 004 005 007 008 009 010 011 012

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
C13-C22	92	89	3	93	120	25

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
70 - 130	0 - 25	0 - 25

QC Reference # 74934 **Date Analyzed:** 7/14/2018 **Technician:** JEN

Samples 028

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QUALITY CONTROL DATA REPORT

PLACEWORKS

1807-00068

Date Reported 07/18/2018
Date Received 07/10/2018
Date Sampled 07/10/2018

Project: PROPOSED ELEM. SCHOOL

Method # EPA 8015B
QC Reference # 74934 **Date Analyzed:** 7/14/2018 **Technician:** JEN
Samples 028

Results

	LCS %REC	LCS %DUP	LCS %RPD
C13-C22	90	96	6

Control Ranges

LCS %REC	LCS %RPD
70 - 130	0 - 25

Method # EPA 8015M
QC Reference # 74856 **Date Analyzed:** 7/12/2018 **Technician:** JEN
Samples 001 002 004 005 007 008 009 010 011 012

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Gasoline (C4-C12)	92	99	100	1.2

Control Ranges

LCS %REC	SPIKE %RPD
70 - 130	0 - 25

Method # EPA 8081A
QC Reference # 74846 **Date Analyzed:** 7/12/2018 **Technician:** JEN
Samples 028

Results

	LCS %REC
4,4'-DDT	70
Aldrin	125
Dieldrin	110
Endrin	85
gamma-BHC	105
Heptachlor	105

Control Ranges

LCS %REC
50 - 130
50 - 140
70 - 130
70 - 150
50 - 150
50 - 150

QC Reference # 74963 **Date Analyzed:** 7/13/2018 **Technician:** AR
Samples 029 030 031 032 033 034 035 036 037 038 039

Results

	LCS %REC
4,4'-DDT	70
Aldrin	105
Dieldrin	100
Endrin	80
gamma-BHC	100
Heptachlor	90

Control Ranges

LCS %REC
50 - 130
50 - 140
70 - 130
70 - 150
50 - 150
50 - 150

Method # EPA 8081A/8082
QC Reference # 74846 **Date Analyzed:** 7/12/2018 **Technician:** JEN
Samples 028

No QC recoveries reported.

QC Reference # 74963 **Date Analyzed:** 7/13/2018 **Technician:** AR
Samples 029 030 031 032 033 034 035 036 037 038 039

No QC recoveries reported.

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QUALITY CONTROL DATA REPORT

PLACEWORKS

1807-00068

Date Reported **07/18/2018**
Date Received **07/10/2018**
Date Sampled **07/10/2018**

Project: PROPOSED ELEM. SCHOOL

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1807.00068

Client Name: PLACEWORKS
E-mail: DCLENDENING@PLACEWORKS.COM
Address: 2950 INLAND EMPIRE BL ONTARIO CA 91764
Report Attention: Denise | Phone #: 909 989 4449 | Fax: # | Sampled By: M. Watson
Project No./ Name: Proposed Elem. School | Project Site: 13636 Nason St, Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic			HOLD	Remarks
																					C=Composite X=discrete
1	B-18@0.5'	7/10/18	0736	Soil	ice	1 acetate sleeve					C		X				X				See B-13@0.5'
	B-18@2.5'		0738																	X	
	B-17@0.5'		0750								C										See B-13@0.5'
	B-17@2.5'		0752																	X	
	B-16@0.5'		0803								C										See B-11@0.5'
	B-16DUP@0.5'		0804								C										See B-1DUP@0.5
	B-16@2.5'		0805																	X	
	B-16DUP@2.5'		0806																	X	
2	B-15@0.5'		0817								C		X				X				See B-11@0.5'
3	B-15DUP@0.5'		0818								C						X				See B-11DUP@0.5
	B-15@2.5'		0819																	X	
	B-15DUP@2.5'		0820																	X	
	B-11@0.5'		0832								C								(29)		B-11, B-15, B-16 @0.5'
	B-11DUP@0.5'		0833								C								(30)		B-11DUP, B-15DUP, B-16DUP@0.5'
	B-11@2.5'		0834																	X	

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	7/10/18	1600	[signature]	ARL	7/10/18	1600
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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E-mail: office@arlaboratories.com

A & R Work Order #: 1807.00068

Client Name: PLACEWORKS
E-mail: DCLENDENING@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BLVD ONTARIO CA 91764
Report Attention: Denise Phone #/Fax: 9099894949 Sampled By: M. Watson
Project No./ Name: Professional School Project Site: 13636 Nason St. Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA6010B Lead	EPA6010B Arsenic			Hold	Remarks (C=composite, X=discrete)
	B-11DUP@2.5'	7/10/18	0835	soil	ice	1 acetate sleeve														X	
	B-12@0.5'		0848								C										see B-6@0.5'
	B-12@2.5'		0850																	X	
	B-13@0.5'		0900								C								31		B-13, B-14, B-17, B-18@0.5'
	B-13@2.5'		0902																	X	
	B-14@0.5'		0910								C										see B-13@0.5'
	B-14@2.5'		0912																	X	
4	B-19@0.5'		0928								C		X				X				see B-6@0.5'
	B-19@2.5'		0930																	X	
5	B-19@5.0'		0932										X								
6	B-5@0.5'		0956													X					
	B-5@2.5'		0958																	X	
7	B-5@5.0'		1000										X								
	B-6@0.5'		1018								C								32		B-6, B-12, B-19@0.5'
	B-6@2.5'		1020																	X	

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	ARL	7/10/18	1600

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B=Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

CHAIN OF CUSTODY

A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

A & R Work Order #: 1807.00068

Client Name: PLACEWORKS
E-mail: DCLEMENCE@PLACEWORKS.COM
Address: 1850 INLAND EMPIRE BLVD ONTARIO, CA 91764
Report Attention: Denise | Phone #: 909 989 4449 | Fax: # | Sampled By: M. Watson
Project No./ Name: Proposed Elem School | Project Site: 13636 Nason St. Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic			HOLD	Remarks
	B-9@0.5'	7/10/18	1031	Soil	ice	1 acetate sleeve					C										See B-7@0.5'
	B-9@2.5'		1033																	X	
8	B-9@5.0'		1035										X								
9	B-10@0.5'		1043								C		X				X				See B-7@0.5'
	B-10@2.5'		1045																	X	
10	B-10@5.0'		1047										X								
11	B-10 DUP@5.0'		1048										X								
	B-7@0.5'		1058								C										B-7, B-8, B-9 B-10@0.5'
	B-7@2.5'		1100																	X	
	B-8@0.5'		1108								C										See B-7@0.5'
	B-8@2.5'		1110																	X	
	B-4@0.5'		1118								C										See B-1@0.5'
	B-4@2.5'		1120																	X	
	B-3@0.5'		1129								C										See B-7@0.5'
	B-3@2.5'		1130																		

C=composite
X= 4 sample

Analyses Requested

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[illegible]	PLACEWORKS	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[illegible]	A2K	7/10/18	1620

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

A & R Laboratories
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Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1807-00068

Client Name: PLACEWORKS
E-mail: DCLEMENNG@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B ontario, CA 91764
Report Attention: Denise
Phone #: 9099894889
Fax: #
Sampled By: M. Watson
Project No./ Name: 18-00068 (Prof. Exam. Sched)
Project Site: 13636 Nason St, Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B-VOCs & Oxygenates	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic			HOLD	Composite Remarks (X = Include)
12	B-2@0.5'	7/10/18	1136	Soil	ice	1 acetate sleeve					C		X				X				See B-1@0.5'
	B-2@2.5'		1138								~~C~~ (mg)									X	~~Hold See B-1@2.5'~~
	B-1@0.5'		1153								C								34		B-1, B-3, B-3 @ 0.5'
	B-1@2.5'		1155								~~C~~ (Pb)									X	~~B-3 @ 2.5'~~ Hold
	B-22@0.5'		1200								C										See B-2@0.5' (mg)
	B-22@2.5'		1202								C										See B-2@2.5'
13	B-26@0.5'		1213													X					
	B-26@2.5'		1215																	X	
14	B-25@0.5'		1225								C					X					See B-25@0.5'
	B-25@2.5'		1227								C										See B-25@2.5'
	B-25DUP@0.5'		1226								C										See B-25DUP@0.5'
	B-25DUP@2.5'		1228																	X	
15	B-20@0.5'		1250								C					X			35		B-20, B-21, B-23 B-23@0.5'
	B-20@2.5'		1253								C								36		B-20, B-21, B-23 B-23@2.5'
16	B-21@0.5'	↓	1257	↓	↓	↓					C					X					See B-20@0.5'

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	7/10/18	1600	[signature]	[signature]	7/10/18	1600
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

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Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1807-00068 Page 5 of 6

Client Name: PLACEWORKS
E-mail: DCLENDENNY@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B Ontario CA 91764
Report Attention: Denise Phone #: 909 989 4449 Fax: # Sampled By: M. Watson
Project No./ Name: Proposed Elem School Project Site: 13636 Nason St, Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead					HOLD	Remarks
	B-21@2.5'	7/10/18	1300	Soil	ice	1 acetate sleeve					C											Composite for Lead
17	B-23@0.5'		1304								C				X							See B-20@2.5'
	B-23@2.5'		1307								C											See B-20@0.5'
18	B-24@0.5'		1311												X							See B-20@2.5'
	B-24@2.5'		1314																		X	
19	B-25@0.5'		1318								C				X				(37)			B-25, B-27, B-28, B-29 @ 0.5'
	B-25@2.5'		1322								C								(38)			B-25, B-27, B-28, B-29 @ 2.5'
20	B-25D.P@0.5'		1319								C				X				(39)			B-25D.P, B-27 Dup, B-28 Dup, B-29 Dup @ 0.5'
	B-25D.P@2.5'		1323																		X	
21	B-27@0.5'		1325								C				X							See B-25@0.5'
22	B-27D.P@0.5'		1326								C				X							See B-25D.P@0.5'
	B-27@2.5'		1327								C											See B-25@2.5'
	B-27D.P@2.5'		1328																		X	HOLD
23	B-29@0.5'		1331								C				X							See B-25@0.5'
24	B-29D.P@0.5'		1332								C				X							See B-25D.P@0.5'

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
	PLACEWORKS	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
					ARL	7/10/18	1620

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Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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E-mail: office@arlaboratories.com

A & R Work Order #: 1807 00068

Page 6 of 6

Client Name: PLACEWORKS
E-mail: DCLENDENING@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B ONTARIO CA 91764
Report Attention: Denise
Phone #: 909 989 4949
Fax: #
Sampled By: M. Watson
Project No./ Name: ~~[illegible]~~
Project Site: 13636 Nason St, Moreno Valley

☒ Chilled
☒ Intact
☐ Seal

Turn Around Time Requested
☐ Rush 8 12 24 48 Hours
☒ Normal

Lab # (Lab use)	Client Sample ID (Proposed Elem. School)	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic				HOLD	Remarks (C=composite, X=discrete)
	B-29@2.5'	7/9/18	1334	Soil	ice	1 acetate sleeve					C										HOLD	See B-25@2.5'
	B-29DUP@2.5'		1335																		X	
25	B-30@0.5'		1342													X						
	B-30@2.5'		1345																		X	
26	B-32@0.5'		1347													X						
	B-32@2.5'		1350																		X	
27	B-31@0.5'		1352													X						
	B-31@2.5'		1355																		X	
28	EB071018		1410	Aqueous	HNO3/ice/HCl	1 amber 1 plastic 3VOAs					X		X			X	X					

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	ARL	7/10/18	1620

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SD=Solid Waste, SL=Sludge, SS=Soil/Sediment, AR=Air, PP=Pure Product

Preservative Code: IC=Ice, HC=HCl, HN=HNO3, SH=NaOH, ST=Na2S2O3, HS=H2SO4

* Sample Container Types: T=Tedlar Air Bag, G=Glass Container, ST= Steel Tube, B= Brass Tube, P=Plastic Bottle, V=VOA Vial, E= EnCore

ARL

Sample Acceptance Checklist

CLIENT: Placeworks WORK ORDER NUMBER: 1807-68

Temperature:(Criteria:0.0°C-6.0°C)

Sample Temp.(w/CF) °C(w/CF) 3.6 °C

☐ Sample(s) outside temprature criteria: PM contacted by :

☐ Sample(s) outside temprature criteria, but received on ice/chilled on same day of sampling.

☐ Sample(s) received at ambient temprature; placed on ice for transport by courier.

Ambient Temprature ☐ Air ☐ Filter

CUSTODY SEAL:

Cooler	☐	Present and Intact	☐	Present and Not Intact	✓	Not Present
Sample(s)	☐	Present and Intact	☐	Present and Not Intact	✓	Not Present

Sample Condition:	Yes	No	N/A
Was a COC received	✓		
Were sample IDs present?	✓		
Were sampling dates & times present?	✓		
Was a relingquished signature present?	✓		
Were the tests required clearly indicated?	✓		
Were all samples sealed in plastic bags?	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were correct containers used for the tests required?	✓		
Was a sufficient amount of samples sent for tests indicated?	✓		
Was there headspace in VOA vials?			✓
Were the containers labeled with correct preservatives?			✓

Explanations/Comments:

Notification:

For discrepancies, how was the Project Manager notified? Verbal

Verbal: PM Initials: _____ Data/Time: _____

Email: Send to: _____ Data/Time: _____

Project Manager's response:

Completed By: Victoria Castillo Date: 7/10/18

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PH: 951-779-0310 Fax: 951-779-0344
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FDA#	2030513
LA City#	10261
ELAP#'s	2789
	2790
	2122

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 08/01/2018 15:28:59
Laboratory Job No. (Certificate of Analysis No.)	1807-00177
Project Name / No.	13636 MASON ST. MORENO VALLEY PROPOSED ELEM SCHOOL PROPOSED ELEM SCHOOL
Dates Sampled (from/to)	07/10/18 To 07/10/18
Dates Received (from/to)	07/10/18 To 07/10/18
Dates Reported (from/to)	08/01/18 To 8/1/2018
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced, wholly or in part, for advertising or other purposes without approval from the laboratory.

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Laboratory Job# 1807-00177

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
B-12@0.5'	4,4'-DDE	**0.36**		mg/Kg	0.010	B-12@0.5'	4,4'-DDT	**0.11**		mg/Kg	0.010
B-12@0.5'	Dieldrin	**0.018**		mg/Kg	0.0020	B-19@0.5'	4,4'-DDE	**0.31**		mg/Kg	0.010
B-19@0.5'	4,4'-DDT	**0.44**		mg/Kg	0.010	B-19@0.5'	Dieldrin	**0.044**		mg/Kg	0.010
B-6@0.5'	4,4'-DDE	**0.26**		mg/Kg	0.010	B-6@0.5'	4,4'-DDT	**0.075**		mg/Kg	0.0020
B-6@0.5'	Dieldrin	**0.0079**		mg/Kg	0.0020	B-6@2.5'	4,4'-DDE	**0.0038**		mg/Kg	0.0020
B-9@0.5'	4,4'-DDE	**0.043**		mg/Kg	0.0020	B-9@0.5'	4,4'-DDT	**0.048**		mg/Kg	0.0020
B-9@0.5'	Dieldrin	**0.030**		mg/Kg	0.0020	B-9@0.5'	Endrin Aldehyde	**0.039**		mg/Kg	0.0020
B-10@0.5'	4,4'-DDE	**0.066**		mg/Kg	0.0020	B-10@0.5'	4,4'-DDT	**0.033**		mg/Kg	0.0020
B-10@0.5'	Dieldrin	**0.018**		mg/Kg	0.0020	B-10@0.5'	Endrin Aldehyde	**0.015**		mg/Kg	0.0020
B-7@0.5'	4,4'-DDE	**0.033**		mg/Kg	0.0020	B-7@0.5'	4,4'-DDT	**0.015**		mg/Kg	0.0020
B-7@0.5'	Dieldrin	**0.0034**		mg/Kg	0.0020	B-7@0.5'	Endrin Aldehyde	**0.0063**		mg/Kg	0.0020
B-8@0.5'	4,4'-DDE	**0.17**		mg/Kg	0.010	B-8@0.5'	4,4'-DDT	**0.074**		mg/Kg	0.0020
B-8@0.5'	Dieldrin	**0.010**		mg/Kg	0.0020	B-8@0.5'	Endrin Aldehyde	**0.015**		mg/Kg	0.0020
B-22@0.5'	4,4'-DDE	**0.15**		mg/Kg	0.010	B-22@0.5'	4,4'-DDT	**0.039**		mg/Kg	0.0020
B-22@0.5'	Chlordane	**0.032**		mg/Kg	0.010	B-22@0.5'	Dieldrin	**0.010**		mg/Kg	0.0020
B-20@0.5'	4,4'-DDE	**0.049**		mg/Kg	0.0020	B-20@0.5'	4,4'-DDT	**0.050**		mg/Kg	0.0020
B-20@0.5'	Chlordane	**0.68**		mg/Kg	0.050	B-20@0.5'	Dieldrin	**0.013**		mg/Kg	0.0020
B-21@0.5'	4,4'-DDE	**0.047**		mg/Kg	0.0020	B-21@0.5'	4,4'-DDT	**0.033**		mg/Kg	0.0020
B-21@0.5'	Chlordane	**0.12**		mg/Kg	0.050	B-21@0.5'	Dieldrin	**0.0068**		mg/Kg	0.0020
B-23@0.5'	4,4'-DDE	**0.038**		mg/Kg	0.0020	B-23@0.5'	4,4'-DDT	**0.010**		mg/Kg	0.0020
B-23@0.5'	Chlordane	**0.13**		mg/Kg	0.010	B-23@0.5'	Dieldrin	**0.0042**		mg/Kg	0.0020

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced, wholly or in part, for advertising or other purposes without approval from the laboratory.

A & R Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

1807-00177

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **B-12@0.5'**					Date & Time Sampled:		07/10/18 @ 8:48	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.36**		mg/Kg	EPA 8081A	5.0	0.010	07/26/18	AR
4,4'-DDT	**0.11**		mg/Kg	EPA 8081A	5.0	0.010	07/26/18	AR
Dieldrin	**0.018**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	67		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	88		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 002 **B-12@2.5'**					Date & Time Sampled:		07/10/18 @ 8:50	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR

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1807-00177

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 002 **B-12@2.5'**					Date & Time Sampled:		07/10/18 @ 8:50	
Sample Matrix: **Soil**								
.....continued								
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	57		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	92		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 003 **B-19@0.5'**					Date & Time Sampled:		07/10/18 @ 9:28	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
alpha-BHC	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
beta-BHC	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
delta-BHC	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
gamma-BHC	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR

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1807-00177

PLACEWORKS
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2850 INLAND EMPIRE BLVD.
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ONTARIO, CA 91764

Date Reported 08/01/18
Date Received 07/10/18
Invoice No. 83122
Cust # P135
Permit Number
Customer P.O. PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 003 **B-19@0.5'**					Date & Time Sampled:		07/10/18 @ 9:28	
Sample Matrix: **Soil**								
.....continued								
Chlordane	<0.050		mg/Kg	EPA 8081A	5.0	0.050	07/27/18	AR
4,4'-DDD	<0.010		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
4,4'-DDE	**0.31**		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
4,4'-DDT	**0.44**		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
Dieldrin	**0.044**		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
Endosulfan I	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
Endosulfan II	<0.010		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
Endosulfan Sulfate	<0.010		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
Endrin	<0.010		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
Endrin Aldehyde	<0.010		mg/Kg	EPA 8081A	5.0	0.010	07/27/18	AR
Endrin ketone	<0.50		mg/Kg	EPA 8081A	5.0	0.50	07/27/18	AR
Heptachlor	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
Heptachlor Epoxide	<0.0050		mg/Kg	EPA 8081A	5.0	0.0050	07/27/18	AR
Methoxychlor	<0.050		mg/Kg	EPA 8081A	5.0	0.050	07/27/18	AR
Toxaphene	<0.10		mg/Kg	EPA 8081A	5.0	0.10	07/27/18	AR
[Surrogates]								
Tetrachloro-m-xylene	92		%REC	EPA 8081A/8082		50-150	07/27/18	AR
Decachlorobiphenyl	84		%REC	EPA 8081A/8082		50-150	07/27/18	AR
Sample: 004 **B-19@2.5'**					Date & Time Sampled:		07/10/18 @ 9:30	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR

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ONTARIO, CA 91764

Date Reported 08/01/18
Date Received 07/10/18
Invoice No. 83122
Cust # P135
Permit Number
Customer P.O. PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 004 **B-19@2.5'**					Date & Time Sampled:		07/10/18 @ 9:30	
Sample Matrix: **Soil**								
.....continued								
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	51		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	82		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 005 **B-6@0.5'**					Date & Time Sampled:		07/10/18 @ 10:18	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.26**		mg/Kg	EPA 8081A	5.0	0.010	07/26/18	AR
4,4'-DDT	**0.075**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.0079**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR

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Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 005 **B-6@0.5'**					Date & Time Sampled:		07/10/18 @ 10:18	
Sample Matrix: **Soil**								
.....continued								
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	57		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	105		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 006 **B-6@2.5'**					Date & Time Sampled:		07/10/18 @ 10:20	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.0038**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR

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Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 006 **B-6@2.5'**					Date & Time Sampled:		07/10/18 @ 10:20	
Sample Matrix: **Soil**								
.....continued								
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	50		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	73		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 007 **B-9@0.5'**					Date & Time Sampled:		07/10/18 @ 10:31	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.043**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	**0.048**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.030**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	**0.039**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR

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1807-00177

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
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ONTARIO, CA 91764

Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 **B-9@0.5'**					Date & Time Sampled:		07/10/18 @ 10:31	
Sample Matrix: **Soil**								
.....continued								
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	69		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	125		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 008 **B-10@0.5'**					Date & Time Sampled:		07/10/18 @ 10:43	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.066**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	**0.033**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.018**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	**0.015**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR

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ONTARIO, CA 91764

Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 008 **B-10@0.5'**					Date & Time Sampled:		07/10/18 @ 10:43	
Sample Matrix: **Soil**								
.....continued								
[Surrogates]								
Tetrachloro-m-xylene	60		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	95		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 009 **B-7@0.5'**					Date & Time Sampled:		07/10/18 @ 10:58	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.033**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	**0.015**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.0034**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	**0.0063**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	57		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	107		%REC	EPA 8081A/8082		50-150	07/26/18	AR

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Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 010 **B-8@0.5'**					Date & Time Sampled:		07/10/18 @ 11:08	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.17**		mg/Kg	EPA 8081A	5.0	0.010	07/26/18	AR
4,4'-DDT	**0.074**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.010**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	**0.015**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	55		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	92		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 011 **B-22@0.5'**					Date & Time Sampled:		07/10/18 @ 12:00	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR

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Date Reported	08/01/18
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Invoice No.	83122
Cust #	P135
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Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 011 **B-22@0.5'**					Date & Time Sampled:		07/10/18 @ 12:00	
Sample Matrix: **Soil**								
.....continued								
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	**0.032**		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.15**		mg/Kg	EPA 8081A	5.0	0.010	07/26/18	AR
4,4'-DDT	**0.039**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.010**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	60		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	88		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 012 **B-20@0.5'**					Date & Time Sampled:		07/10/18 @ 12:50	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR

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Customer P.O. PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 012 **B-20@0.5'**					Date & Time Sampled:		07/10/18 @ 12:50	
Sample Matrix: **Soil**								
.....continued								
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	**0.68**		mg/Kg	EPA 8081A	5.0	0.050	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.049**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	**0.050**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.013**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	50		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	93		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 013 **B-21@0.5'**					Date & Time Sampled:		07/10/18 @ 12:57	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	**0.12**		mg/Kg	EPA 8081A	5.0	0.050	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR

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CERTIFICATE OF ANALYSIS

1807-00177

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 013 **B-21@0.5'**					Date & Time Sampled:		07/10/18 @ 12:57	
Sample Matrix: **Soil**								
.....continued								
4,4'-DDE	**0.047**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	**0.033**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.0068**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	59		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	90		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 014 **B-23@0.5'**					Date & Time Sampled:		07/10/18 @ 13:04	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		07/25/18	AR
Aldrin	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
alpha-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
beta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
delta-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
gamma-BHC	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Chlordane	**0.13**		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDE	**0.038**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
4,4'-DDT	**0.010**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Dieldrin	**0.0042**		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR

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CERTIFICATE OF ANALYSIS

1807-00177

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SC

Date Reported	08/01/18
Date Received	07/10/18
Invoice No.	83122
Cust #	P135
Permit Number	
Customer P.O.	PROPOSED ELEM SC

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 014 **B-23@0.5'**					Date & Time Sampled:		07/10/18 @ 13:04	
Sample Matrix: **Soil**								
.....continued								
Endosulfan I	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	07/26/18	AR
Endrin ketone	<0.100		mg/Kg	EPA 8081A	1.0	0.100	07/26/18	AR
Heptachlor	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Heptachlor Epoxide	<0.0010		mg/Kg	EPA 8081A	1.0	0.0010	07/26/18	AR
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	07/26/18	AR
Toxaphene	<0.020		mg/Kg	EPA 8081A	1.0	0.020	07/26/18	AR
[Surrogates]								
Tetrachloro-m-xylene	50		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Decachlorobiphenyl	66		%REC	EPA 8081A/8082		50-150	07/26/18	AR
Sample: 015 **B-29@2.5'**					Date & Time Sampled:		07/10/18 @ 13:34	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/27/18	TLB
Lead	**2.89**		mg/Kg	EPA 6010B	1.0	0.500	07/27/18	TLB
Sample: 016 **B-30@2.5'**					Date & Time Sampled:		07/10/18 @ 13:45	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		07/27/18	TLB
Lead	**2.41**		mg/Kg	EPA 6010B	1.0	0.500	07/27/18	TLB

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

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QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

1807-00177

PLACEWORKS
ONTARIO, CA 91764

Date Reported	**08/01/2018**
Date Received	**07/10/2018**
Date Sampled	**07/10/2018**
Invoice No.	**83122**
Customer #	**P135**
Customer P.O.	**PROPOSED ELEM SC**

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SCHOOL

Method # EPA 6010B
QC Reference # 75193 **Date Analyzed:** 7/27/2018 **Technician:** TLB
Samples 015 016

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Lead	99	103	4.2	96	97	1.0

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 20	0 - 20

Method # EPA 8081A
QC Reference # 75277 **Date Analyzed:** 7/26/2018 **Technician:** AR
Samples 001 002 004 005 006 007 008 009 010 011 012 013 014

Results

	LCS %REC
4,4'-DDT	50
Aldrin	100
Dieldrin	90
Endrin	70
gamma-BHC	80
Heptachlor	80

Control Ranges

LCS %REC
50 - 130
50 - 140
70 - 130
70 - 150
50 - 150
50 - 150

QC Reference # 75278 **Date Analyzed:** 7/27/2018 **Technician:** AR
Samples 003

Results

	LCS %REC
4,4'-DDT	55
Aldrin	125
Dieldrin	110
Endrin	77
gamma-BHC	100
Heptachlor	100

Control Ranges

LCS %REC
50 - 130
50 - 140
70 - 130
70 - 150
50 - 150
50 - 150

Method # EPA 8081A/8082
QC Reference # 75277 **Date Analyzed:** 7/26/2018 **Technician:** AR
Samples 001 002 004 005 006 007 008 009 010 011 012 013 014

No QC recoveries reported.

QC Reference # 75278 **Date Analyzed:** 7/27/2018 **Technician:** AR
Samples 003

No QC recoveries reported.

No method blank results were above reporting limit

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QUALITY CONTROL DATA REPORT

1807-00177

PLACEWORKS

Date Reported **08/01/2018**
Date Received **07/10/2018**
Date Sampled **07/10/2018**

Project: 13636 MASON ST. MORENO VALLEY PROPOSED ELEM SCHOOL

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1807-177

Page 1 of 5

Client Name: PLACEWORKS
E-mail: DCLENDENNEN@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BLVD ONTARIO CA 91764
Report Attention: Denise
Phone #: 9099899449
Fax: #
Sampled By: M. Watson
Project No./ Name: Professional School
Project Site: 13636 Nason St. Moreno Valley

☒ Chilled
☒ Intact
☐ Seal

Turn Around Time Requested
☐ Rush 8 12 24 48 Hours
☒ Normal

Analyses Requested

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA ~~8082~~ 8081 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA6010B Lead	EPA6010B Arsenic				Hold	Remarks (C=composite, X=discrete)
	B-11DUP @2.5'	7/10/18	0835	Soil	ice	1 acetate sleeve															X	
1	B-12 @0.5'		0848								C	X										see B-6 @0.5'
2	B-12 @2.5'		0850									X									X	
	B-13 @0.5'		0900								C											B-13, B-14, B-15, B-18 @0.5'
	B-13 @2.5'		0902																		X	
	B-14 @0.5'		0910								C											see B-13 @0.5'
	B-14 @2.5'		0912																		X	
3	B-19 @0.5'		0928								C	X	X				X					see B-6 @0.5'
4	B-19 @2.5'		0930									X									X	
	B-19 @5.0'		0932										X									
	B-5 @0.5'		0956													X						
	B-5 @2.5'		0958																		X	
	B-5 @5.0'		1000										X									
5	B-6 @0.5'		1018								C	X										B-6, B-12, B-19 @0.5'
6	B-6 @2.5'		1020									X									X	

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	7/10/18	1600	[signature]	A2R	7/10/18	1600
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SL=Sludge; SS=Soil/Sediment; AR=Air

Preservative Code: IC=Ice; HC=HCl; HN=HNO3; SH=NaOH; ST=Na2S2O3; HS=H2SO4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; B= Brass Tube; P=Plastic Bottle; E= EnCore

ARL

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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1807-177

Page 2 of 5

Client Name: PLACEWORKS
E-mail: DCLENDENNEN@PLACEWORKS.COM
Address: 1850 INLAND EMPIRE BLVD ONTARIO, CA 91764
Report Attention: Denise | Phone #: 909 989 4449 | Fax: # | Sampled By: M. Watson
Project No./ Name: Proposed Elem. School
Project Site: 13636 Nason St. Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA ~~8082~~ 8081 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic				HOLD	Remarks (C-composite X-discrete)
7	B-9@0.5'	7/10/18	1031	Soil	ice	1 acetate sleeve					C	⊗										See B-7@0.5'
	B-9@2.5'		1033																		X	
	B-9@5.0'		1035										X									
8	B-10@0.5'		1043								C	⊗	X			X						See B-7@0.5'
	B-10@2.5'		1045																		X	
	B-10@5.0'		1047										X									
	B-10 DUP @5.0		1048										X									
9	B-7@0.5'		1058								C	⊗										B-7, B-8, B-9, B-10 @0.5'
	B-7@2.5'		1100																		X	
10	B-8@0.5'		1108								C	⊗										See B-7@0.5'
	B-8@2.5'		1110																		X	
	B-4@0.5'		1118								C											See B-1@0.5'
	B-4@2.5'		1120																		X	
	B-3@0.5'		1128								C											See B-1@0.5'
	B-3@2.5'		1130																			

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[illegible]	BLAGRAVE	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	ARL	7/10/18	1600

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SL=Sludge, SS=Soil/Sediment, AR=Air

Preservative Code: IC=Ice, HC=HCl, HN=HNO_3, SH=NaOH, ST=$Na_2S_2O_3$, HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag, G=Glass Container, B= Brass Tube, P=Plastic Bottle, E= EnCore

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CHAIN OF CUSTODY

A & R Work Order #: 1807-177

Page 1 of 5

Client Name: PLACEWORKS
E-mail: DCLENDENNG@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BLVD Ontario, CA 91764
Report Attention: Denise | Phone #: 909 989 4449 | Fax: # | Sampled By: M. Watson
Project No./ Name: Project Express-Glen-wood
Project Site: 3636 Nason St, Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Analyses Requested

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs) 8081 OK	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic				Hold	Remarks (Composite X = 4 samples)
	B-2@0.5'	7/10/18	1136	Soil	ice	1 ea 4oz 8 ea 2oz					C		X				X					See B-1@0.5'
	B-2@2.5'		1138								C	MS									X	Hold See B-1@2.5'
	B-1@0.5'		1153								C											B-1, B-2, B-3, B-4 @ 0.5'
	B-1@2.5'		1155								C	MSD									X	Hold See B-1@2.5'
11	B-22@0.5'		1200								C	⊗										See B-2@0.5'
	B-22@2.5'		1202								C											See B-2@2.5'
	B-26@0.5'		1213													X						
	B-26@2.5'		1215																		X	
	B-28@0.5'		1225								C					X						See B-25@0.5'
	B-28@2.5'		1227								C											See B-25@2.5'
	B-23DUP@0.5'		1226								C											See B-25DUP@0.5'
	B-23DUP@2.5'		1228																		X	
12	B-20@0.5'		1250								C	⊗				X						B-20, B-21, B-23 @ 0.5'
	B-20@2.5'		1253								C											B-20, B-21, B-22, B-23 @ 2.5'
13	B-21@0.5'	↓	1257	↓	↓	↓					C	⊗				X						See B-20@0.5'

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[illegible]	PLACEWORKS	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
					ARL	7/11/18	1600

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; BP=Bulk Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO3; SH=NaOH; ST=Na2S2O3; HS=H2SO4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1807-177

Page 5 of 5 (4 5 / 5 of 5)

Client Name: PLACEWORKS
E-mail: DCLEMENNY@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B Ontario CA 91764
Report Attention: Denise | Phone #: 909 989 4449 | Fax: | Sampled By: M. Watson
Project No./ Name: Proposed Elem School | Project Site: 13636 Nason St, Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA ~~8082~~ (PCBs) 8081 OCPs	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead					HOLD	Composite Remarks / Archive
	B-21@2.5'	7/10/18	1300	Soil	Ice	1 acetate sleeve					C										HOLD	See B-20@2.5'
14	B-23@0.5'		1304								C	X				X						See B-20@0.5'
	B-23@2.5'		1307								C											See B-20@2.5'
	B-24@0.5'		1311													X						
	B-24@2.5'		1314																		X	
	B-25@0.5'		1318								C					X						B-25, B-27, B-29@0.5'
	B-25@2.5'		1322								C											B-25, B-27, B-29@2.5'
	B-25Dup@0.5'		1319								C					X						B-25Dup, B-27Dup, B-29Dup
	B-25Dup@2.5'		1323																		X	
	B-27@0.5'		1325								C					X						See B-25@0.5'
	B-27Dup@0.5'		1326								C					X						See B-25Dup@0.5'
	B-27@2.5'		1327								C											See B-25@2.5'
	B-27Dup@2.5'		1328								~~Mng~~										X	HOLD
	B-29@0.5'		1331								C					X						See B-25@0.5'
	B-29Dup@0.5'		1332								C					X						See B-25Dup@0.5'

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[illegible]	PLACEWORKS	7/10/18	1600				
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[illegible]	ARL	7/10/18	1620

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SL=Sludge; SS=Soil/Sediment; AR=Air

Preservative Code: IC=Ice; HC=HCl; HN=HNO3; SH=NaOH; ST=Na2S2O3; HS=H2SO4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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CHAIN OF CUSTODY

A & R Work Order #: 1807-177

Page 5 of 5 pp

Client Name: PLACEWORKS
E-mail: DCLENDENING@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B ONTARIO CA 91764
Report Attention: Denise
Phone #/Fax: 909 989 4949
Sampled By: M. Watson
Project No./ Name: ~~[illegible]~~
Project Site: 13636 Nason St, Moreno Valley

☒ Chilled ☒ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID (Proposed Elem. School)	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	EPA 6010B Lead	EPA 6010B Arsenic				HOLD	Remarks (C=composite, X=Lead)
15	B-29@2.5'	7/9/18	1334	Soil	ice	1 acetate sleeve					C					⊗					HOLD	See B-25@2.5
	B-29DUP@2.5'	"	1335	"	"	"															X	
	B-30@0.5'	"	1342	"	"	"										X						
16	B-30@2.5'	"	1345	"	"	"										⊗					X	
	B-32@0.5'	"	1347	"	"	"										X						
	B-32@2.5'	"	1350	"	"	"															X	
	B-31@0.5'	"	1352	"	"	"										X						
	B-31@2.5'	"	1355	"	"	"															X	
	EB071018	"	1410	Aqueous	HNO3/ice/HCl	1 amber 1 plastic 3VOAs					X		X			X	X					

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	7/10/18	1600	[signature]			
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
				[signature]	AAR	7/10/18	1620

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SL=Sludge, SS=Soil/Sediment, AR=Air

Preservative Code: IC=Ice, HC=HCl, HN=HNO3, SH=NaOH, ST=Na2S2O3, HS=H2SO4

* Sample Container Types: T=Tedlar Air Bag, G=Glass Container, B= Brass Tube, P=Plastic Bottle, E= EnCore

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CASE NARRATIVE

Authorized Signature Name / Title (print)	Ken Zheng, President
Signature / Date	Ken Zheng, President 04/05/2019 16:28:05
Laboratory Job No. (Certificate of Analysis No.)	1903-00265
Project Name / No.	13636 NASON ST , MORENO VALLEY
Dates Sampled (from/to)	03/29/19 To 03/29/19
Dates Received (from/to)	03/29/19 To 03/29/19
Dates Reported (from/to)	04/05/19 To 4/5/2019
Chains of Custody Received	Yes

Comments:

Subcontracting

Organic Analyses

No analyses sub-contracted

Inorganic Analyses

No analyses sub-contracted

Sample Condition(s)

All samples intact

Positive Results (Organic Compounds)

Sample	Analyte	Result	Qual	Units	RL	Sample	Analyte	Result	Qual	Units	RL
B-20D@0.5'	4,4'-DDD	**0.0048**		mg/Kg	0.0020	B-20D@0.5'	4,4'-DDE	**0.16**		mg/Kg	0.020
B-20D@0.5'	4,4'-DDT	**0.027**		mg/Kg	0.0020	B-20D@0.5'	Chlordane	**0.99**		mg/Kg	0.10
B-20D@0.5'	Endrin Aldehyde	**0.0076**		mg/Kg	0.0020	B-20D@0.5'	Heptachlor Epoxide	**0.044**		mg/Kg	0.0020
B-20A@0.5'	4,4'-DDD	**0.0067**		mg/Kg	0.0020	B-20A@0.5'	4,4'-DDE	**0.009**		mg/Kg	0.0020
B-20A@0.5'	4,4'-DDT	**0.0063**		mg/Kg	0.0020	B-20A@0.5'	Chlordane	**0.027**		mg/Kg	0.010
B-20A@0.5'	Dieldrin	**0.0023**		mg/Kg	0.0020	B-20A@0.5'	Heptachlor Epoxide	**0.0050**		mg/Kg	0.0020
B-20B@0.5'	4,4'-DDE	**0.30**		mg/Kg	0.020	B-20B@0.5'	4,4'-DDT	**0.033**		mg/Kg	0.020
B-20B@0.5'	Chlordane	**0.24**		mg/Kg	0.10	B-20B@0.5'	Heptachlor Epoxide	**0.032**		mg/Kg	0.0020
B-20C@0.5'	4,4'-DDE	**0.0046**		mg/Kg	0.0020	B-20C@0.5'DUP	4,4'-DDE	**0.0031**		mg/Kg	0.0020
B-20E@0.5'	4,4'-DDE	**0.0028**		mg/Kg	0.0020	B-19A@0.5'	4,4'-DDE	**0.0043**		mg/Kg	0.0020
B-19B@0.5'	4,4'-DDE	**0.0063**		mg/Kg	0.0020	B-19C@0.5'	4,4'-DDE	**0.0073**		mg/Kg	0.0020

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1903-00265

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: 13636 NASON ST , MORENO VALLEY

Date Reported	04/05/19
Date Received	03/29/19
Invoice No.	85261
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 001 **B-29A@0.5'**					Date & Time Sampled:		03/29/19 @ 8:03	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**2.64**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 002 **B-29A@0.5'DUP**					Date & Time Sampled:		03/29/19 @ 8:04	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**3.26**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 003 **B-29B@0.5'**					Date & Time Sampled:		03/29/19 @ 8:19	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**9.31**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 004 **B-29C@0.5'**					Date & Time Sampled:		03/29/19 @ 8:31	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**1.91**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 005 **B-29D@0.5'**					Date & Time Sampled:		03/29/19 @ 8:44	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**21.4**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 006 **B-29E@0.5'**					Date & Time Sampled:		03/29/19 @ 8:54	
Sample Matrix: **Soil**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**2.14**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB

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Project: 13636 NASON ST , MORENO VALLEY

Date Reported	04/05/19
Date Received	03/29/19
Invoice No.	85261
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 007 **B-30A@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		03/29/19 @ 9:09	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**15.3**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 008 **B-30B@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		03/29/19 @ 9:27	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**4.47**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 009 **B-30C@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		03/29/19 @ 9:43	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**1.94**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 010 **B-30D@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		03/29/19 @ 9:53	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**2.06**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 011 **B-30E@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		03/29/19 @ 10:08	
[Metals]								
Metals Acid Digestion	Complete			EPA 3050B	1.0		04/03/19	TLB
Lead	**3.12**		mg/Kg	EPA 6010B	1.0	0.500	04/03/19	TLB
Sample: 012 **B-20D@0.5'** Sample Matrix: **Soil**					Date & Time Sampled:		03/29/19 @ 10:21	
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL

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Project: 13636 NASON ST , MORENO VALLEY

Date Reported	04/05/19
Date Received	03/29/19
Invoice No.	85261
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 012 **B-20D@0.5'**					Date & Time Sampled:		03/29/19 @ 10:21	
Sample Matrix: **Soil**								
.....continued								
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Chlordane	**0.99**		mg/Kg	EPA 8081A	10.0	0.10	04/04/19	AL
4,4'-DDD	**0.0048**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
4,4'-DDE	**0.16**		mg/Kg	EPA 8081A	10.0	0.020	04/04/19	AL
4,4'-DDT	**0.027**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin Aldehyde	**0.0076**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Heptachlor Epoxide	**0.044**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/04/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/04/19	AL
[Surrogates]								
Tetrachloro-m-xylene	62		%REC	EPA 8081A/8082		50-150	04/04/19	AL
Decachlorobiphenyl	63		%REC	EPA 8081A/8082		50-150	04/04/19	AL
Sample: 013 **B-20A@0.5'**					Date & Time Sampled:		03/29/19 @ 10:35	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL

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ONTARIO, CA 91764

Project: 13636 NASON ST , MORENO VALLEY

Date Reported 04/05/19
Date Received 03/29/19
Invoice No. 85261
Cust # P135
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 013 **B-20A@0.5'**					Date & Time Sampled:		03/29/19 @ 10:35	
Sample Matrix: **Soil**								
.....continued								
Chlordane	**0.027**		mg/Kg	EPA 8081A	1.0	0.010	04/04/19	AL
4,4'-DDD	**0.0067**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
4,4'-DDE	**0.009**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
4,4'-DDT	**0.0063**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Dieldrin	**0.0023**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Heptachlor Epoxide	**0.0050**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/04/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/04/19	AL
[Surrogates]								
Tetrachloro-m-xylene	67		%REC	EPA 8081A/8082		50-150	04/04/19	AL
Decachlorobiphenyl	64		%REC	EPA 8081A/8082		50-150	04/04/19	AL
Sample: 014 **B-20B@0.5'**					Date & Time Sampled:		03/29/19 @ 10:47	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Chlordane	**0.24**		mg/Kg	EPA 8081A	10.0	0.10	04/04/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
4,4'-DDE	**0.30**		mg/Kg	EPA 8081A	10.0	0.020	04/04/19	AL

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SUITE B
ONTARIO, CA 91764

Project: 13636 NASON ST , MORENO VALLEY

Date Reported 04/05/19
Date Received 03/29/19
Invoice No. 85261
Cust # P135
Permit Number
Customer P.O.

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 014 **B-20B@0.5'**					Date & Time Sampled:		03/29/19 @ 10:47	
Sample Matrix: **Soil**								
.....continued								
4,4'-DDT	**0.033**		mg/Kg	EPA 8081A	10.0	0.020	04/04/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Heptachlor Epoxide	**0.032**		mg/Kg	EPA 8081A	1.0	0.0020	04/04/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/04/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/04/19	AL
[Surrogates]								
Tetrachloro-m-xylene	114		%REC	EPA 8081A/8082		50-150	04/04/19	AL
Decachlorobiphenyl	113		%REC	EPA 8081A/8082		50-150	04/04/19	AL
Sample: 015 **B-20C@0.5'**					Date & Time Sampled:		03/29/19 @ 11:00	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDE	**0.0046**		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL

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CERTIFICATE OF ANALYSIS

1903-00265

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: 13636 NASON ST , MORENO VALLEY

Date Reported	04/05/19
Date Received	03/29/19
Invoice No.	85261
Cust #	P135
Permit Number	
Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 015 **B-20C@0.5'**					Date & Time Sampled:		03/29/19 @ 11:00	
Sample Matrix: **Soil**								
.....continued								
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/02/19	AL
[Surrogates]								
Tetrachloro-m-xylene	75		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Decachlorobiphenyl	62		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Sample: 016 **B-20C@0.5'DUP**					Date & Time Sampled:		03/29/19 @ 11:00	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDE	**0.0031**		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL

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1903-00265

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2850 INLAND EMPIRE BLVD.
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Project: 13636 NASON ST , MORENO VALLEY

Date Reported	04/05/19
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Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 016 **B-20C@0.5'DUP**					Date & Time Sampled:		03/29/19 @ 11:00	
Sample Matrix: **Soil**								
.....continued								
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/02/19	AL
[Surrogates]								
Tetrachloro-m-xylene	70		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Decachlorobiphenyl	58		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Sample: 017 **B-20E@0.5'**					Date & Time Sampled:		03/29/19 @ 11:13	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDE	**0.0028**		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL

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Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 017 **B-20E@0.5'**					Date & Time Sampled:		03/29/19 @ 11:13	
Sample Matrix: **Soil**								
.....continued								
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/02/19	AL
[Surrogates]								
Tetrachloro-m-xylene	64		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Decachlorobiphenyl	55		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Sample: 018 **B-19A@0.5'**					Date & Time Sampled:		03/29/19 @ 11:31	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDE	**0.0043**		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/02/19	AL

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Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 018 **B-19A@0.5'**					Date & Time Sampled:		03/29/19 @ 11:31	
Sample Matrix: **Soil**								
.....continued								
[Surrogates]								
Tetrachloro-m-xylene	73		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Decachlorobiphenyl	61		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Sample: 019 **B-19B@0.5'**					Date & Time Sampled:		03/29/19 @ 11:39	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDE	**0.0063**		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/02/19	AL
[Surrogates]								
Tetrachloro-m-xylene	73		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Decachlorobiphenyl	66		%REC	EPA 8081A/8082		50-150	04/02/19	AL

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Customer P.O.	

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
Sample: 020 **B-19C@0.5'**					Date & Time Sampled:		03/29/19 @ 11:46	
Sample Matrix: **Soil**								
[Pesticides]								
Ultrasonic Extraction	Complete			EPA 3550	1.0		04/02/19	AL
Aldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
alpha-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
beta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
delta-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
gamma-BHC	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Chlordane	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
4,4'-DDD	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDE	**0.0073**		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
4,4'-DDT	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Dieldrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan I	<0.00020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan II	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endosulfan Sulfate	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin Aldehyde	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Endrin ketone	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Heptachlor Epoxide	<0.0020		mg/Kg	EPA 8081A	1.0	0.0020	04/02/19	AL
Methoxychlor	<0.010		mg/Kg	EPA 8081A	1.0	0.010	04/02/19	AL
Toxaphene	<0.050		mg/Kg	EPA 8081A	1.0	0.050	04/02/19	AL
[Surrogates]								
Tetrachloro-m-xylene	67		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Decachlorobiphenyl	63		%REC	EPA 8081A/8082		50-150	04/02/19	AL
Sample: 021 **EB032919**					Date & Time Sampled:		03/29/19 @ 12:00	
Sample Matrix: **Aqueous**								
[Metals]								
Metals Acid Digestion	Complete			EPA 3010A	1.0		04/04/19	TLB
Lead	<0.0100		mg/L	EPA 200.7	1.0	0.0100	04/04/19	TLB

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FDA#	2030513
LA City#	10261
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CERTIFICATE OF ANALYSIS

1903-00265

PLACEWORKS
DENISE CLENDENING
2850 INLAND EMPIRE BLVD.
SUITE B
ONTARIO, CA 91764

Project: 13636 NASON ST , MORENO VALLEY

Date Reported	04/05/19
Date Received	03/29/19
Invoice No.	85261
Cust #	P135
Permit Number	
Customer P.O.	

Sample: 021 **EB032919** Date & Time Sampled: 03/29/19 @ 12:00
Sample Matrix: **Aqueous**
.....continued

Analysis	Result	Qual	Units	Method	DF	RL	Date	Tech
[Pesticides]								
Sep Funnel LLE	Complete			EPA 3510C	1.0		04/02/19	AL
Aldrin	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
alpha-BHC	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
beta-BHC	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
delta-BHC	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
gamma-BHC	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Chlordane	<0.50		µg/L	EPA 8081A	1.0	0.50	04/03/19	AL
4,4'-DDD	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
4,4'-DDE	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
4,4'-DDT	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Dieldrin	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Endosulfan I	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Endosulfan II	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Endosulfan Sulfate	<0.10		µg/L	EPA 8081A	1.0	0.10	04/03/19	AL
Endrin	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Endrin Aldehyde	<0.10		µg/L	EPA 8081A	1.0	0.10	04/03/19	AL
Endrin Ketone	<0.50		µg/L	EPA 8081A	1.0	0.50	04/03/19	AL
Heptachlor	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Heptachlor Epoxide	<0.050		µg/L	EPA 8081A	1.0	0.050	04/03/19	AL
Methoxychlor	<0.50		µg/L	EPA 8081A	1.0	0.50	04/03/19	AL
Toxaphene	<0.50		µg/L	EPA 8081A	1.0	0.50	04/03/19	AL
[Surrogates]								
Tetrachloro-m-xylene	77		%REC	EPA 8081A/8082		50-150	04/03/19	AL
Decachlorobiphenyl	59		%REC	EPA 8081A/8082		50-150	04/03/19	AL

Respectfully Submitted: Ken Zheng

Ken Zheng - Lab Director

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QUALIFIERS

B = Detected in the associated Method Blank at a concentration above the routine RL.
B1 = BOD dilution water is over specifications . The reported result may be biased high.
D = Surrogate recoveries are not calculated due to sample dilution.
E = Estimated value; Value exceeds calibration level of instrument.
H = Analyte was prepared and/or analyzed outside of the analytical method holding time
I = Matrix Interference.
J = Analyte concentration detected between RL and MDL.
Q = One or more quality control criteria did not meet specifications. See Comments for further explanation.
S = Customer provided specification limit exceeded.

ABBREVIATIONS

DF = Dilution Factor
RL = Reporting Limit, Adjusted by DF
MDL = Method Detection Limit, Adjusted by DF
Qual = Qualifier
Tech = Technician

As regulatory limits change frequently, A & R Laboratories advises the recipient of this report to confirm such limits with the appropriate federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

1903-00265

PLACEWORKS
ONTARIO, CA 91764

Date Reported	**04/05/2019**
Date Received	**03/29/2019**
Date Sampled	**03/29/2019**
Invoice No.	**85261**
Customer #	**P135**
Customer P.O.	

Project: 13636 NASON ST , MORENO VALLEY

Method # EPA 200.7
QC Reference # 80578 **Date Analyzed:** 4/4/2019 **Technician:** TLB
Samples 021

Results

	LCS %REC	LCS %DUP	LCS %RPD
Calcium	97	97	0.2
Lead	101	102	0.7
Magnesium	96	96	0.2
Potassium	96	95	1.0
Sodium	106	107	0.7

Control Ranges

LCS %REC	LCS %RPD
85 - 115	0 - 15
85 - 115	0 - 15
85 - 115	0 - 15
85 - 115	0 - 15
85 - 115	0 - 15

Method # EPA 6010B
QC Reference # 80550 **Date Analyzed:** 4/3/2019 **Technician:** TLB
Samples 001 002 003 004 005 006 007 008 009 010 011

Results

	LCS %REC	LCS %DUP	LCS %RPD	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
Lead	98	98	0.1	90	90	0.3

Control Ranges

LCS %REC	LCS %RPD	SPIKE %RPD
75 - 125	0 - 20	0 - 20

Method # EPA 8081A
QC Reference # 80557 **Date Analyzed:** 4/2/2019 **Technician:** AL
Samples 015 016 017 018 019 020

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
4,4'-DDT	82	54	58	4
Aldrin	88	110	111	1
Dieldrin	130	106	107	1
Endrin	105	82	82	0.5
gamma-BHC	110	88	89	1
Heptachlor	94	78	100	22

Control Ranges

LCS %REC	SPIKE %RPD
50 - 130	0 - 30
50 - 140	0 - 30
70 - 130	0 - 30
70 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

QC Reference # 80572 **Date Analyzed:** 4/3/2019 **Technician:** AL
Samples 021

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
4,4'-DDT	81	53	55	2
Aldrin	135	110	111	1
Dieldrin	129	107	107	0.2
Endrin	103	80	79	1
gamma-BHC	110	88	88	0.5
Heptachlor	120	98	98	0.3

Control Ranges

LCS %REC	SPIKE %RPD
50 - 130	0 - 30
50 - 140	0 - 30
70 - 130	0 - 30
70 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

QC Reference # 80607 **Date Analyzed:** 4/4/2019 **Technician:** AL
Samples 012 013 014

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QUALITY CONTROL DATA REPORT

PLACEWORKS

1903-00265

Date Reported 04/05/2019
Date Received 03/29/2019
Date Sampled 03/29/2019

Project: 13636 NASON ST , MORENO VALLEY

Method # EPA 8081A
QC Reference # 80607 **Date Analyzed:** 4/4/2019 **Technician:** AL
Samples 012 013 014

Results

	LCS %REC	SPIKE %REC	SPIKE %DUP	SPIKE %RPD
4,4'-DDT	115	54	132	78
Aldrin	116	109	124	15
Dieldrin	122	106	124	18
Endrin	120	92	132	40
gamma-BHC	91	90	95	5
Heptachlor	102	76	81	5

Control Ranges

LCS %REC	SPIKE %RPD
50 - 130	0 - 30
50 - 140	0 - 30
70 - 130	0 - 30
70 - 150	0 - 30
50 - 150	0 - 30
50 - 150	0 - 30

Method # EPA 8081A/8082
QC Reference # 80557 **Date Analyzed:** 4/2/2019 **Technician:** AL
Samples 015 016 017 018 019 020

Results

	BLKSRR%REC
Decachlorobiphenyl	58
Tetrachloro-m-xylene	107

Control Ranges

BLKSRR%REC
50 - 150
50 - 150

QC Reference # 80572 **Date Analyzed:** 4/3/2019 **Technician:** AL
Samples 021

Results

	BLKSRR%REC
Decachlorobiphenyl	57
Tetrachloro-m-xylene	104

Control Ranges

BLKSRR%REC
50 - 150
50 - 150

QC Reference # 80607 **Date Analyzed:** 4/4/2019 **Technician:** AL
Samples 012 013 014

Results

	BLKSRR%REC
Decachlorobiphenyl	59
Tetrachloro-m-xylene	64

Control Ranges

BLKSRR%REC
50 - 150
50 - 150

No method blank results were above reporting limit

Respectfully Submitted: Ken Zheng

Ken Zheng - President

For any feedback concerning our services, please contact Jenny Jiang, Project Manager at 951.779.0310. You may also contact Ken Zheng, President at office@arlaboratories.com.

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QUALITY CONTROL DATA REPORT

1903-00265

PLACEWORKS

Date Reported 04/05/2019
Date Received 03/29/2019
Date Sampled 03/29/2019

Project: 13636 NASON ST , MORENO VALLEY

A & R Laboratories
1650 S. Grove Ave., Ste C, Ontario, CA 91761
Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1903-265

Client Name: PLACEWORKS
E-mail: DCLENDENNING@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B ONTARIO CA 91764
Report Attention: Denise
Phone #: 909 989 4449
Fax: #
Sampled By: M. Watson
Project No./ Name: MOR636.0
Project Site: 13636 Nason St. Moreno Valley, CA

☑ Chilled ☑ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	6010B Lead					Hold	Remarks
1	B-29a@0.5'	3/29/19	0803	soil	ice	1 glass jar										X						
2	B-29a DUP@0.5'		0804													X						
	B-29a@2.5'		0808																		X	
	B-29a DUP@2.5'		0809																		X	
3	B-29b@0.5'		0819													X						
	B-29b@2.5'		0822																		X	
4	B-29c@0.5'		0831													X						
	B-29c@2.5'		0835																		X	
5	B-29d@0.5'		0844													X						
	B-29d@2.5'		0848																		X	
6	B-29e@0.5'		0854													X						
	B-29e@2.5'		0859																		X	
7	B-30a@0.5'		0909													X						
	B-30a@2.5'		0915																		X	
8	B-30b@0.5'		0927													X						

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	3/29/19	1323	[signature]		3/29	13:23
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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Tel: 951-779-0310 / 909-781-6335 Fax: 951-779-0344
E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1903-265

Client Name: PLACEWORKS
E-mail: DCLEDGING@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B ONTARIO CA 91764
Report Attention: Denise
Phone #: 909 [redacted]
Fax: #
Sampled By: M. Watson
Project No./ Name: MORG36.0
Project Site: 13636 Nason St. Moreno Valley CA

☐ Chilled ☐ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	6010B Lead					HOLD	Remarks
	B-30b@2.5'	3/29/19	0935	Soil	ice	1 glass jar															X	
9	B-30c@0.5'	↓	0943	↓	↓	↓										X					X	
	B-30c@2.5'		0947																		X	
10	B-30d@0.5'		0953													X						
	B-30d@2.5'		0959																		X	
11	B-30e@0.5'		1008													X						
	B-30e@2.5'		1012																		X	
12	B-20d@0.5'		1021								X											
	B-20d@2.5'		1025																		X	
13	B-20a@0.5'		1035								X											
	B-20a@2.5'		1040																		X	
14	B-20b@0.5'		1047								X											
	B-20b@2.5'		1052																		X	
15	B-20c@0.5'		1100								X											
16	B-20c@2.5'		1100	↓	↓	↓					X											

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	3/29/19	1323	[signature]		3/29/19	13:23
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

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E-mail: office@arlaboratories.com

CHAIN OF CUSTODY

A & R Work Order #: 1903-265

Client Name: PLACEWORKS
E-mail: DCLOSTUNG@PLACEWORKS.COM
Address: 2850 INLAND EMPIRE BL #B ONTARIO CA 91764
Report Attention: Denise
Phone #: 909 989 4949
Fax: #
Sampled By: M. Watson
Project No./ Name: MORE-36.0
Project Site: 13636 Nason St. Moreno Valley, CA

☐ Chilled ☐ Intact ☐ Seal

Turn Around Time Requested: ☐ Rush 8 12 24 48 Hours ☒ Normal

Lab # (Lab use)	Client Sample ID	Sample Collection Date	Sample Collection Time	Matrix Type	Sample Preserve	No., type* & size of container	EPA8260B (VOCs & Oxygenates)	EPA8260B(BTEX & Oxygenates)	LUFT / 8015 (Gasoline)	LUFT / 8015 (Diesel)	EPA8081A (Organochlorine Pesticides)	EPA 8082 (PCBs)	EPA 8015M (Carbon Chain C4-C40)	EPA 6010B/7000 (CAM 17 Metals)	Micro: Plate Cnt., Coliform, E-Coli	6010B Lead						Remarks
	B-20 @ 2.5'	3/29/19	1105	Soil	ice	1 glass jar															X	
	B-20 DUP @ 2.5'		1106																		X	
17	B-20 @ 0.5'		1113								X											
	B-20 @ 2.5'		1117																		X	
18	B-19a @ 0.5'		1131								X											
	B-19a @ 2.5'		1134																		X	
19	B-19b @ 0.5'		1139								X											
	B-19b @ 2.5'		1143																		X	
20	B-19c @ 0.5'		1146								X											
	B-19c @ 2.5'		1150																		X	
21	EB032919		1200	aqueous	ice / HNO_3	2 plastic bottles					X					X						

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	PLACEWORKS	3/29/19	1323	[signature]		3/29	13:23
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Note: Samples are discarded 30 days after results are reported unless other arrangements are made.

Matrix Code: DW=Drinking Water; GW=Ground Water; WW=Waste Water; SD=Solid Waste; SL=Sludge; SS=Soil/Sediment; AR=Air; PP=Pure Product

Preservative Code: IC=Ice; HC=HCl; HN=HNO_3; SH=NaOH; ST=$Na_2S_2O_3$; HS=H_2SO_4

* Sample Container Types: T=Tedlar Air Bag; G=Glass Container; ST= Steel Tube; B= Brass Tube; P=Plastic Bottle; V=VOA Vial; E= EnCore

ARL

Sample Acceptance Checklist

CLIENT: Placeworks WORK ORDER NUMBER: 1903-265

Temperature:(Criteria:0.0°C-6.0°C)

Sample Temp.(w/CF) °C(w/CF) 5.3 °C

☐ Sample(s) outside temprature criteria: PM contacted by :

☐ Sample(s) outside temprature criteria, but received on ice/chilled on same day of sampling.

☐ Sample(s) received at ambient temprature; placed on ice for transport by courier.

☐ Ambient Temprature ☐ Air ☐ Filter

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present and Not Intact ☑ Not Present

Sample(s) ☐ Present and Intact ☐ Present and Not Intact ☑ Not Present

Sample Condition:	Yes	No	N/A
Was a COC received	✓		
Were sample IDs present?	✓		
Were sampling dates & times present?	✓		
Was a relingquished signature present?	✓		
Were the tests required clearly indicated?	✓		
Were all samples sealed in plastic bags?			✓
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were correct containers used for the tests required?	✓		
Was a sufficient amount of samples sent for tests indicated?	✓		
Was there headspace in VOA vials?			✓
Were the containers labeled with correct preservatives?			✓

Explanations/Comments:

Notification:

For discrepancies, how was the Project Manager notified? Verbal

Verbal: PM Initials: _____ Data/Time: _____

Email: Send to: _____ Data/Time: _____

Project Manager's response:

Completed By: Carlos S Date: 3/29/19

A R Laboratories
1650 S. Grove Ave., Suite C, Ontario, CA 91761
PH: 951-779-0310 Fax: 951-779-0344
Email: office@arlaboratories.com

1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3			User Selected Options									
4			Date/Time of Computation	ProUCL 5.14/6/2019 12:37:53 PM								
5			From File	lead stat.xls								
6			Full Precision	OFF								
7			Confidence Coefficient	95%								
8			Number of Bootstrap Operations	2000								
9												
10												
11	**Lead**											
12												
13	**General Statistics**											
14					Total Number of Observations	29			Number of Distinct Observations	29		
15									Number of Missing Observations	0		
16					Minimum	0.25			Mean	28.5		
17					Maximum	214			Median	11		
18					SD	46.91			Std. Error of Mean	8.71		
19					Coefficient of Variation	1.646			Skewness	2.872		
20												
21	**Normal GOF Test**											
22					Shapiro Wilk Test Statistic	0.602			**Shapiro Wilk GOF Test**			
23					5% Shapiro Wilk Critical Value	0.926			Data Not Normal at 5% Significance Level			
24					Lilliefors Test Statistic	0.313			**Lilliefors GOF Test**			
25					5% Lilliefors Critical Value	0.161			Data Not Normal at 5% Significance Level			
26	**Data Not Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
30					95% Student's-t UCL	43.31			95% Adjusted-CLT UCL (Chen-1995)	47.79		
31									95% Modified-t UCL (Johnson-1978)	44.09		
32												
33	**Gamma GOF Test**											
34					A-D Test Statistic	0.848			**Anderson-Darling Gamma GOF Test**			
35					5% A-D Critical Value	0.799			Data Not Gamma Distributed at 5% Significance Level			
36					K-S Test Statistic	0.145			**Kolmogorov-Smirnov Gamma GOF Test**			
37					5% K-S Critical Value	0.171			Detected data appear Gamma Distributed at 5% Significance Level			
38	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41					k hat (MLE)	0.609			k star (bias corrected MLE)	0.569		
42					Theta hat (MLE)	46.76			Theta star (bias corrected MLE)	50.05		
43					nu hat (MLE)	35.35			nu star (bias corrected)	33.02		
44					MLE Mean (bias corrected)	28.5			MLE Sd (bias corrected)	37.76		
45									Approximate Chi Square Value (0.05)	20.89		
46					Adjusted Level of Significance	0.0407			Adjusted Chi Square Value	20.31		
47												
48	**Assuming Gamma Distribution**											
49					95% Approximate Gamma UCL (use when n>=50)	45.06			95% Adjusted Gamma UCL (use when n<50)	46.34		
50												
51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.968			**Shapiro Wilk Lognormal GOF Test**			

53	5% Shapiro Wilk Critical Value					0.926	Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic					0.119	**Lilliefors Lognormal GOF Test**					
55	5% Lilliefors Critical Value					0.161	Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data					-1.386	Mean of logged Data					2.338
60	Maximum of Logged Data					5.366	SD of logged Data					1.534
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					84.96	90% Chebyshev (MVUE) UCL					64.55
64	95% Chebyshev (MVUE) UCL					79.73	97.5% Chebyshev (MVUE) UCL					100.8
65	99% Chebyshev (MVUE) UCL					142.2						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL					42.82	95% Jackknife UCL					43.31
72	95% Standard Bootstrap UCL					42.23	95% Bootstrap-t UCL					56.67
73	95% Hall's Bootstrap UCL					116.8	95% Percentile Bootstrap UCL					44.66
74	95% BCA Bootstrap UCL					48.42						
75	90% Chebyshev(Mean, Sd) UCL					54.63	95% Chebyshev(Mean, Sd) UCL					66.46
76	97.5% Chebyshev(Mean, Sd) UCL					82.89	99% Chebyshev(Mean, Sd) UCL					115.2
77												
78	**Suggested UCL to Use**											
79	95% Adjusted Gamma UCL					46.34						
80												
81	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
82	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
83												
84	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
85	Recommendations are based upon data size, data distribution, and skewness.											
86	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
87	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
88												

UCL Statistics for Data Sets with Non-Detects		
User Selected Options		
Date/Time of Computation	ProUCL 5.14/6/2019 12:32:14 PM	
From File	stat ocp_b.xls	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	

DDD

General Statistics

Total Number of Observations	2	Number of Distinct Observations	2
		Number of Missing Observations	21
Minimum	0.0048	Mean	0.00575
Maximum	0.0067	Median	0.00575

Warning: This data set only has 2 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable DDD was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

DDE

General Statistics

Total Number of Observations	21	Number of Distinct Observations	21
		Number of Missing Observations	2
Minimum	0.0028	Mean	0.0965
Maximum	0.36	Median	0.043
SD	0.118	Std. Error of Mean	0.0257
Coefficient of Variation	1.222	Skewness	1.167

Normal GOF Test

Shapiro Wilk Test Statistic	0.779	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.908	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.276	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.188	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.141	95% Adjusted-CLT UCL (Chen-1995)	0.146
		95% Modified-t UCL (Johnson-1978)	0.142

Gamma GOF Test

A-D Test Statistic	0.743	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.798	Detected data appear Gamma Distributed at 5% Significance Level

53				K-S Test Statistic	0.178	**Kolmogorov-Smirnov Gamma GOF Test**						
54				5% K-S Critical Value	0.199	Detected data appear Gamma Distributed at 5% Significance Level						
55	**Detected data appear Gamma Distributed at 5% Significance Level**											
56												
57	**Gamma Statistics**											
58				k hat (MLE)	0.579					k star (bias corrected MLE)	0.528	
59				Theta hat (MLE)	0.167					Theta star (bias corrected MLE)	0.183	
60				nu hat (MLE)	24.32					nu star (bias corrected)	22.18	
61				MLE Mean (bias corrected)	0.0965					MLE Sd (bias corrected)	0.133	
62										Approximate Chi Square Value (0.05)	12.47	
63				Adjusted Level of Significance	0.0383					Adjusted Chi Square Value	11.91	
64												
65	**Assuming Gamma Distribution**											
66			95% Approximate Gamma UCL (use when n>=50)		0.172					95% Adjusted Gamma UCL (use when n<50)	0.18	
67												
68	**Lognormal GOF Test**											
69				Shapiro Wilk Test Statistic	0.902	**Shapiro Wilk Lognormal GOF Test**						
70				5% Shapiro Wilk Critical Value	0.908	Data Not Lognormal at 5% Significance Level						
71				Lilliefors Test Statistic	0.156	**Lilliefors Lognormal GOF Test**						
72				5% Lilliefors Critical Value	0.188	Data appear Lognormal at 5% Significance Level						
73	**Data appear Approximate Lognormal at 5% Significance Level**											
74												
75	**Lognormal Statistics**											
76				Minimum of Logged Data	-5.878					Mean of logged Data	-3.411	
77				Maximum of Logged Data	-1.022					SD of logged Data	1.722	
78												
79	**Assuming Lognormal Distribution**											
80				95% H-UCL	0.597					90% Chebyshev (MVUE) UCL	0.299	
81				95% Chebyshev (MVUE) UCL	0.377					97.5% Chebyshev (MVUE) UCL	0.486	
82				99% Chebyshev (MVUE) UCL	0.7							
83												
84	**Nonparametric Distribution Free UCL Statistics**											
85	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
86												
87	**Nonparametric Distribution Free UCLs**											
88				95% CLT UCL	0.139					95% Jackknife UCL	0.141	
89				95% Standard Bootstrap UCL	0.138					95% Bootstrap-t UCL	0.153	
90				95% Hall's Bootstrap UCL	0.14					95% Percentile Bootstrap UCL	0.142	
91				95% BCA Bootstrap UCL	0.143							
92				90% Chebyshev(Mean, Sd) UCL	0.174					95% Chebyshev(Mean, Sd) UCL	0.209	
93				97.5% Chebyshev(Mean, Sd) UCL	0.257					99% Chebyshev(Mean, Sd) UCL	0.353	
94												
95	**Suggested UCL to Use**											
96				95% Adjusted Gamma UCL	0.18							
97												
98	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
99	Recommendations are based upon data size, data distribution, and skewness.											
100	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
101	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
102												
103												
104	**DDT**											

105												
106	**General Statistics**											
107					Total Number of Observations	14				Number of Distinct Observations	12	
108										Number of Missing Observations	9	
109					Minimum	0.0063				Mean	0.071	
110					Maximum	0.44				Median	0.036	
111					SD	0.11				Std. Error of Mean	0.0294	
112					Coefficient of Variation	1.549				Skewness	3.337	
113												
114	**Normal GOF Test**											
115					Shapiro Wilk Test Statistic	0.526	**Shapiro Wilk GOF Test**					
116					5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level					
117					Lilliefors Test Statistic	0.342	**Lilliefors GOF Test**					
118					5% Lilliefors Critical Value	0.226	Data Not Normal at 5% Significance Level					
119	**Data Not Normal at 5% Significance Level**											
120												
121	**Assuming Normal Distribution**											
122					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**		
123					95% Student's-t UCL	0.123				95% Adjusted-CLT UCL (Chen-1995)	0.147	
124										95% Modified-t UCL (Johnson-1978)	0.127	
125												
126	**Gamma GOF Test**											
127					A-D Test Statistic	0.802	**Anderson-Darling Gamma GOF Test**					
128					5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level					
129					K-S Test Statistic	0.207	**Kolmogorov-Smirnov Gamma GOF Test**					
130					5% K-S Critical Value	0.235	Detected data appear Gamma Distributed at 5% Significance Level					
131	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
132												
133	**Gamma Statistics**											
134					k hat (MLE)	0.99				k star (bias corrected MLE)	0.825	
135					Theta hat (MLE)	0.0717				Theta star (bias corrected MLE)	0.086	
136					nu hat (MLE)	27.71				nu star (bias corrected)	23.11	
137					MLE Mean (bias corrected)	0.071				MLE Sd (bias corrected)	0.0781	
138										Approximate Chi Square Value (0.05)	13.17	
139					Adjusted Level of Significance	0.0312				Adjusted Chi Square Value	12.18	
140												
141	**Assuming Gamma Distribution**											
142					95% Approximate Gamma UCL (use when n>=50)	0.124				95% Adjusted Gamma UCL (use when n<50)	0.135	
143												
144	**Lognormal GOF Test**											
145					Shapiro Wilk Test Statistic	0.957	**Shapiro Wilk Lognormal GOF Test**					
146					5% Shapiro Wilk Critical Value	0.874	Data appear Lognormal at 5% Significance Level					
147					Lilliefors Test Statistic	0.145	**Lilliefors Lognormal GOF Test**					
148					5% Lilliefors Critical Value	0.226	Data appear Lognormal at 5% Significance Level					
149	**Data appear Lognormal at 5% Significance Level**											
150												
151	**Lognormal Statistics**											
152					Minimum of Logged Data	-5.067				Mean of logged Data	-3.23	
153					Maximum of Logged Data	-0.821				SD of logged Data	1.045	
154												
155	**Assuming Lognormal Distribution**											
156					95% H-UCL	0.157				90% Chebyshev (MVUE) UCL	0.124	

157				95% Chebyshev (MVUE) UCL	0.15					97.5% Chebyshev (MVUE) UCL	0.188	
158				99% Chebyshev (MVUE) UCL	0.261							
159												
160	**Nonparametric Distribution Free UCL Statistics**											
161	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
162												
163	**Nonparametric Distribution Free UCLs**											
164				95% CLT UCL	0.119					95% Jackknife UCL	0.123	
165				95% Standard Bootstrap UCL	0.118					95% Bootstrap-t UCL	0.256	
166				95% Hall's Bootstrap UCL	0.312					95% Percentile Bootstrap UCL	0.128	
167				95% BCA Bootstrap UCL	0.151							
168				90% Chebyshev(Mean, Sd) UCL	0.159					95% Chebyshev(Mean, Sd) UCL	0.199	
169				97.5% Chebyshev(Mean, Sd) UCL	0.254					99% Chebyshev(Mean, Sd) UCL	0.363	
170												
171	**Suggested UCL to Use**											
172				95% Adjusted Gamma UCL	0.135							
173												
174	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
175	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
176												
177	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
178	Recommendations are based upon data size, data distribution, and skewness.											
179	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
180	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
181												
182	**Chlordane**											
183												
184	**General Statistics**											
185				Total Number of Observations	23					Number of Distinct Observations	8	
186				Number of Detects	7					Number of Non-Detects	16	
187				Number of Distinct Detects	7					Number of Distinct Non-Detects	2	
188				Minimum Detect	0.005					Minimum Non-Detect	0.0025	
189				Maximum Detect	0.99					Maximum Non-Detect	0.005	
190				Variance Detects	0.148					Percent Non-Detects	69.57%	
191				Mean Detects	0.301					SD Detects	0.384	
192				Median Detects	0.13					CV Detects	1.279	
193				Skewness Detects	1.28					Kurtosis Detects	0.287	
194				Mean of Logged Detects	-2.316					SD of Logged Detects	1.904	
195												
196	**Normal GOF Test on Detects Only**											
197				Shapiro Wilk Test Statistic	0.798					**Shapiro Wilk GOF Test**		
198				5% Shapiro Wilk Critical Value	0.803					Detected Data Not Normal at 5% Significance Level		
199				Lilliefors Test Statistic	0.277					**Lilliefors GOF Test**		
200				5% Lilliefors Critical Value	0.304					Detected Data appear Normal at 5% Significance Level		
201	**Detected Data appear Approximate Normal at 5% Significance Level**											
202												
203	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
204				KM Mean	0.0932					KM Standard Error of Mean	0.0539	
205				KM SD	0.239					95% KM (BCA) UCL	0.191	
206				95% KM (t) UCL	0.186					95% KM (Percentile Bootstrap) UCL	0.181	
207				95% KM (z) UCL	0.182					95% KM Bootstrap t UCL	0.402	
208				90% KM Chebyshev UCL	0.255					95% KM Chebyshev UCL	0.328	

209				97.5% KM Chebyshev UCL	0.43					99% KM Chebyshev UCL	0.63	
210												
211					Gamma GOF Tests on Detected Observations Only							
212				A-D Test Statistic	0.253	Anderson-Darling GOF Test						
213				5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significance Level						
214				K-S Test Statistic	0.202	Kolmogorov-Smirnov GOF						
215				5% K-S Critical Value	0.326	Detected data appear Gamma Distributed at 5% Significance Level						
216					Detected data appear Gamma Distributed at 5% Significance Level							
217												
218					Gamma Statistics on Detected Data Only							
219				k hat (MLE)	0.56	k star (bias corrected MLE)	0.415					
220				Theta hat (MLE)	0.537	Theta star (bias corrected MLE)	0.724					
221				nu hat (MLE)	7.842	nu star (bias corrected)	5.815					
222				Mean (detects)	0.301							
223												
224					Gamma ROS Statistics using Imputed Non-Detects							
225					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
226					GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)							
227					For such situations, GROS method may yield incorrect values of UCLs and BTVs							
228					This is especially true when the sample size is small.							
229					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
230				Minimum	0.005	Mean	0.0984					
231				Maximum	0.99	Median	0.01					
232				SD	0.243	CV	2.467					
233				k hat (MLE)	0.412	k star (bias corrected MLE)	0.387					
234				Theta hat (MLE)	0.239	Theta star (bias corrected MLE)	0.254					
235				nu hat (MLE)	18.95	nu star (bias corrected)	17.81					
236				Adjusted Level of Significance (β)	0.0389							
237				Approximate Chi Square Value (17.81, α)	9.252	Adjusted Chi Square Value (17.81, β)	8.806					
238				95% Gamma Approximate UCL (use when n>=50)	0.189	95% Gamma Adjusted UCL (use when n<50)	0.199					
239												
240					Estimates of Gamma Parameters using KM Estimates							
241				Mean (KM)	0.0932	SD (KM)	0.239					
242				Variance (KM)	0.0573	SE of Mean (KM)	0.0539					
243				k hat (KM)	0.152	k star (KM)	0.161					
244				nu hat (KM)	6.97	nu star (KM)	7.394					
245				theta hat (KM)	0.615	theta star (KM)	0.58					
246				80% gamma percentile (KM)	0.107	90% gamma percentile (KM)	0.279					
247				95% gamma percentile (KM)	0.506	99% gamma percentile (KM)	1.156					
248												
249					Gamma Kaplan-Meier (KM) Statistics							
250				Approximate Chi Square Value (7.39, α)	2.389	Adjusted Chi Square Value (7.39, β)	2.188					
251				95% Gamma Approximate KM-UCL (use when n>=50)	0.288	95% Gamma Adjusted KM-UCL (use when n<50)	0.315					
252												
253					Lognormal GOF Test on Detected Observations Only							
254				Shapiro Wilk Test Statistic	0.954	Shapiro Wilk GOF Test						
255				5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level						
256				Lilliefors Test Statistic	0.151	Lilliefors GOF Test						
257				5% Lilliefors Critical Value	0.304	Detected Data appear Lognormal at 5% Significance Level						
258					Detected Data appear Lognormal at 5% Significance Level							
259												
260					Lognormal ROS Statistics Using Imputed Non-Detects							

261					Mean in Original Scale	0.0919					Mean in Log Scale	-7.184
262					SD in Original Scale	0.245					SD in Log Scale	4.092
263					95% t UCL (assumes normality of ROS data)	0.18					95% Percentile Bootstrap UCL	0.181
264					95% BCA Bootstrap UCL	0.217					95% Bootstrap t UCL	0.419
265					95% H-UCL (Log ROS)	2716						
266												
267					**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**							
268					KM Mean (logged)	-4.873					KM Geo Mean	0.00765
269					KM SD (logged)	1.951					95% Critical H Value (KM-Log)	3.97
270					KM Standard Error of Mean (logged)	0.439					95% H-UCL (KM -Log)	0.267
271					KM SD (logged)	1.951					95% Critical H Value (KM-Log)	3.97
272					KM Standard Error of Mean (logged)	0.439						
273												
274					**DL/2 Statistics**							
275					**DL/2 Normal**						**DL/2 Log-Transformed**	
276					Mean in Original Scale	0.0932					Mean in Log Scale	-4.903
277					SD in Original Scale	0.245					SD in Log Scale	2.017
278					95% t UCL (Assumes normality)	0.181					95% H-Stat UCL	0.328
279					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
280												
281					**Nonparametric Distribution Free UCL Statistics**							
282					**Detected Data appear Approximate Normal Distributed at 5% Significance Level**							
283												
284					**Suggested UCL to Use**							
285					95% KM (t) UCL	0.186						
286												
287					When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test							
288					When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL							
289												
290					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
291					Recommendations are based upon data size, data distribution, and skewness.							
292					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
293					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
294												
295	**Dieldrin**											
296												
297					**General Statistics**							
298					Total Number of Observations	23					Number of Distinct Observations	11
299					Number of Detects	12					Number of Non-Detects	11
300					Number of Distinct Detects	10					Number of Distinct Non-Detects	1
301					Minimum Detect	0.0023					Minimum Non-Detect	0.001
302					Maximum Detect	0.044					Maximum Non-Detect	0.001
303					Variance Detects	1.5048E-4					Percent Non-Detects	47.83%
304					Mean Detects	0.014					SD Detects	0.0123
305					Median Detects	0.01					CV Detects	0.878
306					Skewness Detects	1.591					Kurtosis Detects	2.402
307					Mean of Logged Detects	-4.607					SD of Logged Detects	0.876
308												
309					**Normal GOF Test on Detects Only**							
310					Shapiro Wilk Test Statistic	0.834					**Shapiro Wilk GOF Test**	
311					5% Shapiro Wilk Critical Value	0.859					Detected Data Not Normal at 5% Significance Level	
312					Lilliefors Test Statistic	0.21					**Lilliefors GOF Test**	

	A	B	C	D	E	F	G	H	I	J	K	L
313	5% Lilliefors Critical Value					0.243	Detected Data appear Normal at 5% Significance Level					
314	**Detected Data appear Approximate Normal at 5% Significance Level**											
315												
316	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
317	KM Mean					0.00777	KM Standard Error of Mean					0.00232
318	KM SD					0.0107	95% KM (BCA) UCL					0.012
319	95% KM (t) UCL					0.0118	95% KM (Percentile Bootstrap) UCL					0.0115
320	95% KM (z) UCL					0.0116	95% KM Bootstrap t UCL					0.0146
321	90% KM Chebyshev UCL					0.0147	95% KM Chebyshev UCL					0.0179
322	97.5% KM Chebyshev UCL					0.0223	99% KM Chebyshev UCL					0.0309
323												
324	**Gamma GOF Tests on Detected Observations Only**											
325	A-D Test Statistic					0.21	**Anderson-Darling GOF Test**					
326	5% A-D Critical Value					0.744	Detected data appear Gamma Distributed at 5% Significance Level					
327	K-S Test Statistic					0.137	**Kolmogorov-Smirnov GOF**					
328	5% K-S Critical Value					0.249	Detected data appear Gamma Distributed at 5% Significance Level					
329	**Detected data appear Gamma Distributed at 5% Significance Level**											
330												
331	**Gamma Statistics on Detected Data Only**											
332	k hat (MLE)					1.636	k star (bias corrected MLE)					1.283
333	Theta hat (MLE)					0.00854	Theta star (bias corrected MLE)					0.0109
334	nu hat (MLE)					39.27	nu star (bias corrected)					30.79
335	Mean (detects)					0.014						
336												
337	**Gamma ROS Statistics using Imputed Non-Detects**											
338	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
339	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)											
340	For such situations, GROS method may yield incorrect values of UCLs and BTVs											
341	This is especially true when the sample size is small.											
342	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
343	Minimum					0.0023	Mean					0.0121
344	Maximum					0.044	Median					0.01
345	SD					0.00891	CV					0.738
346	k hat (MLE)					2.802	k star (bias corrected MLE)					2.465
347	Theta hat (MLE)					0.00431	Theta star (bias corrected MLE)					0.0049
348	nu hat (MLE)					128.9	nu star (bias corrected)					113.4
349	Adjusted Level of Significance (β)					0.0389						
350	Approximate Chi Square Value (113.41, α)					89.82	Adjusted Chi Square Value (113.41, β)					88.3
351	95% Gamma Approximate UCL (use when n>=50)					0.0152	95% Gamma Adjusted UCL (use when n<50)					0.0155
352												
353	**Estimates of Gamma Parameters using KM Estimates**											
354	Mean (KM)					0.00777	SD (KM)					0.0107
355	Variance (KM)					1.1392E-4	SE of Mean (KM)					0.00232
356	k hat (KM)					0.529	k star (KM)					0.489
357	nu hat (KM)					24.35	nu star (KM)					22.5
358	theta hat (KM)					0.0147	theta star (KM)					0.0159
359	80% gamma percentile (KM)					0.0127	90% gamma percentile (KM)					0.0211
360	95% gamma percentile (KM)					0.0301	99% gamma percentile (KM)					0.0521
361												
362	**Gamma Kaplan-Meier (KM) Statistics**											
363	Approximate Chi Square Value (22.50, α)					12.72	Adjusted Chi Square Value (22.50, β)					12.18
364	95% Gamma Approximate KM-UCL (use when n>=50)					0.0137	95% Gamma Adjusted KM-UCL (use when n<50)					0.0143

365												
366	**Lognormal GOF Test on Detected Observations Only**											
367					Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk GOF Test**					
368					5% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 5% Significance Level					
369					Lilliefors Test Statistic	0.0885	**Lilliefors GOF Test**					
370					5% Lilliefors Critical Value	0.243	Detected Data appear Lognormal at 5% Significance Level					
371	**Detected Data appear Lognormal at 5% Significance Level**											
372												
373	**Lognormal ROS Statistics Using Imputed Non-Detects**											
374					Mean in Original Scale	0.00781			Mean in Log Scale	-5.789		
375					SD in Original Scale	0.0109			SD in Log Scale	1.51		
376					95% t UCL (assumes normality of ROS data)	0.0117			95% Percentile Bootstrap UCL	0.0117		
377					95% BCA Bootstrap UCL	0.0126			95% Bootstrap t UCL	0.0138		
378					95% H-UCL (Log ROS)	0.0274						
379												
380	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**											
381					KM Mean (logged)	-5.707			KM Geo Mean	0.00332		
382					KM SD (logged)	1.299			95% Critical H Value (KM-Log)	2.945		
383					KM Standard Error of Mean (logged)	0.283			95% H-UCL (KM -Log)	0.0175		
384					KM SD (logged)	1.299			95% Critical H Value (KM-Log)	2.945		
385					KM Standard Error of Mean (logged)	0.283						
386												
387	**DL/2 Statistics**											
388	**DL/2 Normal**								**DL/2 Log-Transformed**			
389					Mean in Original Scale	0.00753			Mean in Log Scale	-6.039		
390					SD in Original Scale	0.0111			SD in Log Scale	1.65		
391					95% t UCL (Assumes normality)	0.0115			95% H-Stat UCL	0.0317		
392	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
393												
394	**Nonparametric Distribution Free UCL Statistics**											
395	**Detected Data appear Approximate Normal Distributed at 5% Significance Level**											
396												
397	**Suggested UCL to Use**											
398					95% KM (t) UCL	0.0118						
399												
400	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
401	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
402												
403	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
404	Recommendations are based upon data size, data distribution, and skewness.											
405	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
406	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
407												
408												
409	**Heptachlor Epoxide**											
410												
411	**General Statistics**											
412					Total Number of Observations	3			Number of Distinct Observations	3		
413									Number of Missing Observations	20		
414					Minimum	0.005			Mean	0.027		
415					Maximum	0.044			Median	0.032		
416					SD	0.02			Std. Error of Mean	0.0115		

417				Coefficient of Variation	0.74					Skewness	-1.056	
418												
419	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**											
420	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**											
421	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**											
422	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1**											
423												
424	**Normal GOF Test**											
425				Shapiro Wilk Test Statistic	0.953	**Shapiro Wilk GOF Test**						
426				5% Shapiro Wilk Critical Value	0.767	Data appear Normal at 5% Significance Level						
427				Lilliefors Test Statistic	0.265	**Lilliefors GOF Test**						
428				5% Lilliefors Critical Value	0.425	Data appear Normal at 5% Significance Level						
429	**Data appear Normal at 5% Significance Level**											
430												
431	**Assuming Normal Distribution**											
432				**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**						
433				95% Student's-t UCL	0.0607	95% Adjusted-CLT UCL (Chen-1995)	0.0385					
434						95% Modified-t UCL (Johnson-1978)	0.0595					
435												
436	**Gamma GOF Test**											
437	**Not Enough Data to Perform GOF Test**											
438												
439	**Gamma Statistics**											
440				k hat (MLE)	1.605	k star (bias corrected MLE)	N/A					
441				Theta hat (MLE)	0.0168	Theta star (bias corrected MLE)	N/A					
442				nu hat (MLE)	9.632	nu star (bias corrected)	N/A					
443				MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A					
444						Approximate Chi Square Value (0.05)	N/A					
445				Adjusted Level of Significance	N/A	Adjusted Chi Square Value	N/A					
446												
447	**Assuming Gamma Distribution**											
448			95% Approximate Gamma UCL (use when n>=50))		N/A	95% Adjusted Gamma UCL (use when n<50)	N/A					
449												
450	**Lognormal GOF Test**											
451				Shapiro Wilk Test Statistic	0.857	**Shapiro Wilk Lognormal GOF Test**						
452				5% Shapiro Wilk Critical Value	0.767	Data appear Lognormal at 5% Significance Level						
453				Lilliefors Test Statistic	0.335	**Lilliefors Lognormal GOF Test**						
454				5% Lilliefors Critical Value	0.425	Data appear Lognormal at 5% Significance Level						
455	**Data appear Lognormal at 5% Significance Level**											
456												
457	**Lognormal Statistics**											
458				Minimum of Logged Data	-5.298	Mean of logged Data	-3.955					
459				Maximum of Logged Data	-3.124	SD of logged Data	1.175					
460												
461	**Assuming Lognormal Distribution**											
462				95% H-UCL	13017	90% Chebyshev (MVUE) UCL	0.0799					
463				95% Chebyshev (MVUE) UCL	0.103	97.5% Chebyshev (MVUE) UCL	0.135					
464				99% Chebyshev (MVUE) UCL	0.198							
465												
466	**Nonparametric Distribution Free UCL Statistics**											
467	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
468												

	A	B	C	D	E	F	G	H	I	J	K	L
469	**Nonparametric Distribution Free UCLs**											
470					95% CLT UCL	0.046				95% Jackknife UCL		0.0607
471					95% Standard Bootstrap UCL	N/A				95% Bootstrap-t UCL		N/A
472					95% Hall's Bootstrap UCL	N/A				95% Percentile Bootstrap UCL		N/A
473					95% BCA Bootstrap UCL	N/A						
474					90% Chebyshev(Mean, Sd) UCL	0.0616				95% Chebyshev(Mean, Sd) UCL		0.0773
475					97.5% Chebyshev(Mean, Sd) UCL	0.099				99% Chebyshev(Mean, Sd) UCL		0.142
476												
477	**Suggested UCL to Use**											
478					95% Student's-t UCL	0.0607						
479												
480	**Recommended UCL exceeds the maximum observation**											
481												
482	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
483	Recommendations are based upon data size, data distribution, and skewness.											
484	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
485	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
486												
487	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											
488	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**											
489												

Appendix F. QAPP

Appendix

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August 2018 | Quality Assurance Project Plan

PROPOSED MORENO VALLEY ELEMENTARY SCHOOL-NASON STREET

for Moreno Valley Unified School District

Prepared for:

Moreno Valley Unified School District
Contact: Moreno Valley Unified School District
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MORE-33.0

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PLACEWORKS

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1. Introduction

This Quality Assurance Project Plan (QAPP) has been prepared by PlaceWorks on behalf of Moreno Valley Unified School District (District) to address quality assurance (QA) and quality control (QC) policies associated with the collection of environmental data at the Proposed Moreno Valley Elementry School – Nason Street (site), in Moreno Valley, California. This QAPP presents the plan for sampling and analysis as part of the investigation. U.S. Environmental Protection Agency (USEPA) policy requires a QAPP for all environmental data collection projects mandated or supported by the USEPA through regulations or other formalized means (USEPA 1998a). The purpose of this QAPP is to identify the methods to be employed to establish technical accuracy, precision, and validity of data that is generated at the site.

This QAPP contains general and specific details regarding field sampling, laboratory, and analytical procedures that apply to investigation activities. It provides field and laboratory personnel with instructions regarding activities to be performed before, during, and after field investigations. These instructions will insure data collected for use in project decisions will be of the type and quality required to meet the data quality objectives (DQOs) for the project.

Guidelines followed in the preparation of this QAPP are described in EPA Requirements for Quality Assurance Plans for Environmental Data Operations, External Review Draft Final, EPA QA/R-5 (USEPA 1998a) and EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5 (USEPA 1998b). Other documents that have been referenced in this plan include Guidance for the Data Quality Objectives Process, EPA QA/G-4 (USEPA 1994a) and Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (USEPA SW-846, Third Edition, 1996).

1.1 PROJECT HISTORY AND OBJECTIVES

The 8.97-acre site has been identified by the District as the proposed acquisition school site. The project site is located within Section 10 of Township 3 South, Range 3 West of the San Bernardino Base Line and Meridian.

Past usage of the site was assessed through an interview, historical aerial photographs, topographic maps and databases. Copies of historical information reviewed are included in Appendix B. Based on a review of historical information; the site has been utilized for agricultural purposes from at least 1938 to 2006. Structures have been associated with this site since at least 1938, there is a residential dwelling located on the northwest corner of the site.

1. Introduction

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2. Project Description

This section presents information concerning the proposed sampling activities, selected analytical parameters, data quality objectives, and the resulting project decisions.

2.1 ANALYTICAL SCOPE

The planned sampling effort includes the sampling and analysis of shallow soils for a list of potential hazardous substances. Soil samples will be collected on the project area in accordance with the protocols detailed in the DTSC's PEA Guidance Manual (DTSC 2015).

The appropriate analyses selected for this field program, and the rationale for selection of these parameters, will be further provided in the Workplan. A&R Laboratories, Inc. (ARL), located in Ontario, California, will perform testing of soil samples.

2.2 DATA USE

Decisions to be made based upon the planned sampling and analysis effort will be determined by the data compiled from the sampling and analysis program. It is intended that data collected through implementation of this QAPP will satisfy federal, state, and local data quality requirements. These data may be used to characterize the nature and extent of contamination, support risk assessment, support the evaluation of corrective/remedial action, and/or assist in determination of additional actions.

The presence of environmental contaminants will be determined by the extent of valid detectable concentrations of the constituents discussed above. If the data associated with any detections of chemicals of potential concern (COPCs) are confirmed, the data will be used to assess risk using accepted methods for determining potential carcinogenic and non-carcinogenic exposures. If results from the risk screening evaluations indicate no risks of exposure with respect to the use of the property, then the District will use the data to support No Further Action consent from DTSC, and the proposed development may continue without modification. If the evaluation indicates unacceptable risks of exposure, then the data can be used by District for further consideration of action.

2. Site Description

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3. Project Organization

This section provides a description of the organizational structure and responsibilities of the individual positions for this project. This description defines the lines of communication and identifies key personnel assigned to various activities for the project.

3.1 MORENO VALLEY UNIFIED SCHOOL DISTRICT

Mr. John S. Nichols is the designated contact person for the District. Mr. Nichols will be responsible for the directional decisions, as well as budget control, and for work conducted at the school site. Mr. Nichols, or designee, may perform document review of related work plans, reports, and drawings for activities associated with this project.

3.2 PLACEWORKS

The investigation contractor has responsibility for assigned phases of investigation and reporting. Together the management team (Project Manager and Field Manager) will be responsible for the technical planning and implementation of the work. The QA staff has responsibility for effective planning, verification and management of QA activities associated with the assigned project.

Dr. Denise Clendening is the PlaceWorks Project Manager and will serve as the primary contact with the DTSC and the District. Her responsibilities include strategy development, budget control, document control, project management, risk assessment and document review.

Mr. Michael Watson of PlaceWorks is a Professional Geologist in the State of California. Mr. Watson's responsibilities include field activities and preparation of required reports and data validation including quality assurance/quality control.

3.3 LABORATORY

The primary offsite laboratory is anticipated to be ARL in Ontario, California. ARL will perform analytical testing for soil samples collected for this investigation. The laboratory's project manager will report to the PlaceWorks Field Manager on all aspects of the sample analysis. In addition, the PlaceWorks QA Manager will be advised of any matters related to data quality during the course of the investigation.

3. Project Organization

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4. Data Quality Objectives

DQOs have been specified for each data collection activity. The project work will be conducted and documented so that the data collected are of sufficient quality for their intended use (USEPA 1998). DQOs specify the data type, quality, quantity, and uses needed to make decisions, and are the basis for designing data collection activities. The DQOs have been used to design the data collection activities that will be presented in the Workplan. The DQOs for the project are discussed in the following sections.

4.1 DATA QUALITY OBJECTIVES

The project DQOs developed specifically for the planned sampling and analysis program have been determined based on USEPA's seven-step DQO process (USEPA 1994a). The Project Manager will evaluate the DQOs to determine if the quantitative and qualitative needs of the sampling and analysis program have been met. The project definition associated with each step of the DQO process can be summarized as follows:

State the problem: The purpose of the sampling program is to determine if the proposed site is acceptable for the development of a new educational facility. Although the proposed development of the site will result in asphalt or concrete surfacing over the majority of the site, exposed soils will exist in landscaped areas where students could come into contact. Previous investigations have not performed a complete evaluation of potential contamination based on historical use of the property.

Identify the Decision: The data obtained from the sampling and testing activities will be used to evaluate if releases of hazardous substances from historical uses have occurred at the site. The investigative results will be further evaluated to determine to what extent any contamination identified will result in risk of exposure. The results will be compiled and used to assess the relative threat associated with any contamination identified, through a baseline risk assessment. Based on the calculation of human health and ecological risks for the site, the suitability of the property for its intended development will be determined.

Identify Inputs to the Decision: Inputs to the decision will include results of analytical testing of soil gas samples, and shallow soils from selected locations on the site. Each of these matrices will be tested for the specified analytes discussed in Section II.

Define the Study Boundaries: The boundaries of the field sampling and analysis program will be the perimeter of the site as discussed above and detailed in the Workplan.

Develop a Decision Rule: Decisions will be based upon laboratory results for the target constituents presented in Tables 1 through 3 for each respective matrix tested. If no valid detectable concentrations of target compounds are reported for the given samples, then a decision will be made that the site is fully characterized with respect to the compounds tested and no further sampling will be required as part of this

investigation. If target constituents are detected in the samples tested, then the data will be compiled for use in calculating the human health and ecological risk of exposure. The results of the risk evaluation will be used by the District to support a No Further Action consent from DTSC, if the data indicate risk is acceptable.

Specify Limits on Decision Error: The results of all analytical testing will be subjected to data validation specified in Section 7.3. Data are determined to be valid if the specified DQOs for precision, accuracy, representativeness, comparability and completeness are achieved. The results of any detected target constituents will be considered in evaluating the need for additional sampling of soil gas and/or site soil, and assessing the necessity for reducing any risks posed by the potential contamination.

Optimize the Design: The field sampling program has been designed to provide the type and quantity of data needed to satisfy each of the aforementioned objectives. A separate Workplan provides the specifications for the data collection activities, including the numbers of samples, respective locations, and sampling techniques. The quality of the data will be assessed through the procedures further described in this QAPP.

4.2 PRECISION, ACCURACY, REPRESENTATIVENESS, COMPARABILITY AND COMPLETENESS

The basis for assessing the elements of data quality is discussed in the following subsections. In the absence of laboratory specific precision and accuracy limits, the QC limits listed in this section must be met.

4.2.1 Precision

Precision measures the reproducibility of repetitive measurements. It is strictly defined as the degree of mutual agreement among independent measurements as the result of repeated application of the sample process under similar conditions.

Analytical precision is a measurement of the variability associated with duplicate or replicate analyses of the same sample in the laboratory. Precision is assessed by analysis of the results between laboratory quality control sample pairs. These include laboratory control sample (LCS) and LCS duplicates, matrix spike (MS) and MS duplicates (MSD), or sample duplicates. If the recoveries of analytes in the specified control samples pairs are comparable within established control limits, then precision criteria are satisfied.

Total precision is a measurement of the variability associated with the entire sampling and analytical process. It is determined by analysis of duplicate (two) or replicate (more than two) field samples, and measures variability introduced by both the laboratory and field operations. Field duplicate samples are analyzed to assess combined field and analytical precision.

Duplicate results are assessed using the relative percent difference (RPD) between duplicate measurements. If the RPD for laboratory quality control samples exceeds 30 percent, data will be qualified as described in the applicable validation procedure. If the RPD between primary and duplicate field samples exceeds 100 percent for soil or soil gas, data will be qualified as described in the applicable validation procedure.

The RPD is calculated as the difference between the two samples results (absolute value) divided by the average of the two sample results. The equation can be expressed as follows:

$$\%RPD = 200 \times ((x2-x1) / (x2+x1))$$

4.2.2 Accuracy

Accuracy is a statistical measurement of correctness of a measured value, and includes components of random error (variability due to imprecision) and systematic error. It reflects the total error associated with a measurement. A measurement is accurate when the value reported does not differ from the true value of a known concentration, spike, or standard.

Accuracy of laboratory analyses will be assessed by LCS recoveries, surrogate standard recoveries, MS spike recoveries, and initial and continuing calibrations of instruments. Laboratory accuracy is expressed as the percent recovery (%R). Accuracy limits are statistically generated by the laboratory or required by specified USEPA methods. If the percent recovery is determined to be outside of acceptance criteria, data will be qualified as described in the applicable validation procedure. The calculation of percent recovery is provided below:

$$\% R = 100 \times (Xs-X)/T$$

Where Xs is the measured value of the spiked sample, X is the measured value of the unspiked sample, and T is the true value of the spike solution added.

Accuracy is also assessed by the analysis of laboratory and field blanks. Assessment of blank results provides information regarding potential bias imparted to analytical results from measurement systems and/or field conditions. Field accuracy will be assessed through the analysis of field equipment blanks. Analysis of field blanks documents bias associated with the sampling process, field contamination, sample preservation, and sample handling. The DQO for field equipment and trip blanks is that all values are less than the reporting limit for each target constituent. If contamination is reported in the field equipment or trip blanks, data will be qualified as described in the applicable validation procedure.

4.2.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent selected characteristics of the media sampled. Representativeness of data collection is addressed by careful preparation of sampling and analysis programs. This QAPP addresses representativeness by specifying sufficient and proper numbers and locations of samples; incorporating appropriate sampling methodologies; specifying proper sample collection techniques and decontamination procedures; selecting appropriate laboratory methods to prepare and analyze soil and soil gas; and establishing proper field and laboratory QA/QC procedures.

4.2.4 Completeness

Completeness is the measure of valid data obtained compared to the amount that was expected under ideal conditions. The number of valid results divided by the number of possible results, expressed as a percentage,

4. Data Quality Objectives

determines the completeness of the data set. The objective for completeness is to obtain at least 90 percent of the planned data to support evaluation and assessment efforts. Specifically, for background samples, a completeness requirement of 100 percent is mandated. The formula for calculation of completeness is presented, as follows:

$$\% \text{ Completeness} = 100 \times \frac{\text{number of valid results}}{\text{number of expected results}}$$

4.2.5 Comparability

Comparability is an expression of confidence with which one data set can be compared to another. The objective of comparability is to ensure that data developed during the investigation are comparable with data previously collected (i.e., methods of analysis are comparable), and that the methods used adequately address applicable criteria or standards established by the USEPA and California Department of Health Services (CADHS). This QAPP addresses comparability by specifying laboratory methods that are consistent with the current standards of practice as approved by the USEPA and CADHS. Field methods will be discussed in the Workplan.

5. Quality Control Elements

This section presents QC requirements relevant to analysis of environmental samples that will be followed during all project analytical activities. The purpose of the QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials.

5.1 QUALITY CONTROL ELEMENTS

The chemical data to be collected for this effort will be used to determine that the extent of contamination is properly evaluated. As such, it is critical that the chemical data is documented to be of the highest confidence and quality. Consequently, strict QA/QC procedures will be adhered to. These procedures include:

- Adherence to protocols for field sampling and decontamination procedures;
- Collection and laboratory analysis of appropriate field and equipment blanks to monitor for contamination of samples in the field or the laboratory;
- Collection and laboratory analysis of site specific matrix spike, matrix spike duplicate, and blind duplicate samples to evaluate precision and accuracy; and
- Attainment of completeness goals.

5.1.1 Equipment Decontamination

Non-dedicated equipment will be decontaminated before and after each sample is collected. The equipment will be washed in a non-phosphate detergent and potable water, rinsed in potable water, and then double rinsed in distilled water. A description of the specific methodologies to be followed to maximize proper decontamination of non-dedicated sampling equipment is provided in the Workplan.

5.1.2 Standards

Standards used for calibration or to prepare samples will be certified by National Institute of Standards and Technology (NIST), USEPA, or other equivalent source. The standards will be current. The expiration date will be established by the manufacturer, or based on chemical stability, the possibility of contamination, and environmental and storage conditions. Standards will be labeled with expiration dates, and will reference primary standard sources if applicable. Expired standards will be discarded.

5. Quality Control Elements

5.1.3 Supplies

All supplies will be inspected prior to their use in the field or laboratory. The descriptions for sample collection and analysis contained in the methods will be used as a guideline for establishing the acceptance criteria for supplies. A current inventory and appropriate storage system for these materials will assure their integrity prior to use.

5.1.4 Holding Time Compliance

Sample preparation and analysis will be completed within the required method holding times (Table 1). Holding time begins at the time of sample collection. If holding times are exceeded, and the analyses are performed, the associated results will be qualified as described in the applicable validation procedure. The following definitions of extraction and analysis compliance are used to assess holding times:

- Preparation or extraction completion - completion of the sample preparation process as described in the applicable method, prior to any necessary extract cleanup.

- Analysis completion - completion of all analytical runs, including dilutions, second-column confirmations, and any required re-analyses.

5.1.5 Preventative Maintenance

The Field Manager for PlaceWorks is responsible for documenting the maintenance of all field equipment prescribed in the manufacturer's specifications. Scheduled maintenance will be performed by trained personnel. Procedures specific to the calibration, use and maintenance of field equipment are presented in the Workplan. The analytical laboratory is responsible for all analytical equipment calibration and maintenance as described in their laboratory QA Plan. Subcontractors are responsible for maintenance of all equipment needed to carry out subcontracted duties

5.2 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) SAMPLES

The purpose of this QA/QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials. Quality assurance and quality control samples will be collected as part of the overall QA/QC program.

5.2.1 Laboratory Reagent Blanks

A laboratory reagent blank is de-ionized, distilled water that is extracted by the laboratory and analyzed as a sample. Analysis of the reagent blank indicates potential sources of contamination from laboratory procedures (e.g., contaminated reagents, improperly cleaned laboratory equipment, or persistent contamination due to presence of certain compounds in the ambient laboratory air). A reagent blank will be analyzed at least once each day for each method utilized by the laboratory for that day.

5.2.2 Field Equipment Blanks

A field equipment blank is a sample that is prepared in the field by pouring de-ionized, distilled water into cleaned sampling equipment. The water is then collected and analyzed as a sample. Field equipment blanks are typically blind (given a fictitious name so that the laboratory will not recognize it as a blank). The field equipment blank gives an indication of contamination from field procedures (e.g., improperly cleaned sampling equipment, cross-contamination). Field equipment blanks will be collected at a minimum frequency of at least one per day when non-dedicated equipment is utilized. The field equipment blanks should be analyzed using the same analyses requested for the associated primary samples collected.

5.2.3 Trip Blanks

The primary purpose of trip blanks is to detect potential additional sources of contamination that could potentially influence contaminant values reported in field samples, both quantitatively and qualitatively. Trip blanks serve as a mechanism of control for sample bottle preparation, blank water quality and sample handling. They are generally submitted to the laboratory for analysis of VOCs. If VOCs are detected with the PID at or above 1 part per million, trip blanks will included as part of the sampling program.

5.2.4 Matrix Spike Samples

Matrix spikes are performed by the analytical laboratory to evaluate the efficiency of the sample extraction and analysis procedures, and are necessary because matrix interference (interferences from non-target compound in the sample matrix, water or soil) may have a widely varying impact on the accuracy and precision of the extraction analysis. The matrix spike is prepared by the addition of known quantities of target compounds to a sample. The sample is extracted and analyzed. The results of the analysis are compared with the known additions and a matrix spike recovery is calculated giving an evaluation of the accuracy of the extraction and analysis procedures. Matrix spike recoveries are reviewed to check that they are within acceptable range. However, the acceptable ranges vary widely with both sample matrix and analytical method. Matrix spikes and matrix spike duplicates will be analyzed by the laboratory at a frequency of at least one per twenty, or 5 percent of the primary field samples. Typically, matrix spikes are performed in duplicate in order to evaluate the precision of the procedures as well as the accuracy. Precision objectives (represented by agreement between matrix spike and matrix spike duplicate recoveries) and accuracy objectives (represented by matrix spike recovery results) are based on statistically generated limits established annually by the analytical laboratory. It is important to note that these objectives are to be viewed as goals, not as criteria. If matrix bias is suspected, the associated data will be qualified and the direction of the bias indicated in the data validation report.

5.2.5 Field Duplicate Samples

Field duplicate samples will be collected and analyzed to evaluate sampling and analytical precision. Field duplicates are collected and analyzed in the same manner as the primary samples. Agreement between duplicate sample results will indicate good sampling and analytical precision. Specific locations will be designated for collection of field duplicates prior to the start of field activities. Field duplicates will be collected at a frequency of 10 percent of the primary samples collected. The duplicate sample will be

5. Quality Control Elements

analyzed for all laboratory analyses requested for the primary sample collected. The precision goal for field duplicates analyses will be plus or minus 50 percent relative percent difference for aqueous samples and plus or minus 100 percent relative percent difference for soil, or air samples. Results for samples exceeding these goals will be qualified as estimated. Professional judgement will be used to determine if all samples in the associated batch will be qualified as well.

5.2.6 Performance Evaluation Samples

Double blind performance evaluation (PE) samples may be submitted to the analytical laboratory during any site investigation. These samples may be of water or soil matrix, and are used to assess the accuracy of analytical procedures employed for a given sample set. PE samples will be used if questionable data quality is suspected as determined during laboratory audits or data validation.

If used, double blind PE samples will be prepared by Environmental Resources Standards, or similar supplier, in similar sample containers as the project field samples and shipped from the field to the laboratory for analysis.

Double blind PE samples will be prepared using NIST and/or A2LA certified standards. The project-specific PE samples will contain known concentrations of the analytes of interest. Laboratory results will be evaluated against the original Certificates of Analyses for precision and accuracy. PE samples may be submitted for analysis as part of the laboratory pre-qualification process, or as part of a given sampling event. Results will be reported to the laboratory and presented with associated field sample results

6. Sampling Procedures

The defensibility of data is dependent on the use of well defined, accepted sampling procedures. This section describes the sampling and handling procedures that will be followed for each sampling event.

6.1 SAMPLING PROCEDURES

Collection of high integrity environmental samples is important to the quality of chemical data to be generated. To this end, detailed field procedures have been developed to guide sample collections during each phase of the field investigation. These procedures are contained in the Workplan.

6.1.1 Sample Containers, Preservation and Holding Times

Table 1 lists the required sample containers, preservatives, and recommended maximum holding times for samples. Sample containers provided by the laboratory will be new, and purchased commercially from I-Chem, Eagle Pitcher, or other equivalent validated sources.

6.1.2 Sample Handling and Storage

In the field, each sample container will be marked with the sampling location number, and date and time of sample collection. All sample containers will be wiped with paper towels and securely packed, in a cooler on ice, in preparation for delivery to the laboratory.

Upon receipt of the samples, the laboratory will immediately notify the Field Manager if conditions or problems are identified which require immediate resolution. Such conditions include container breakage, missing or improper chain-of-custody, exceeded holding times, improper preservation, missing or illegible sample labeling, or temperature excursions.

6.1.3 Sample Custody

For each sample that is submitted to the laboratory for analysis, an entry will be made on a chain-of-custody form supplied by the laboratory. The information to be recorded includes the sampling date and time, sample identification number, matrix type, requested analyses and methods, preservatives, and the sampler's name. Sampling team members will maintain custody of the samples until they are relinquished to laboratory personnel or a professional courier service. The chain-of-custody form will accompany the samples from the time of collection until received by the laboratory. Each party in possession of the samples (except the professional courier service) will sign the chain-of-custody form signifying receipt.

The chain-of-custody form will be placed in a plastic bag and shipped with samples inside the cooler. After the samples, ice, and chain-of-custody forms are packed in the coolers, the cooler will be appropriately sealed before it is relinquished to the courier. A copy of the original completed form will be provided by the

6. Sampling Procedures

laboratory along with the report of results. Upon receipt, the laboratory will inspect the condition of the sample containers and report the information on chain-of-custody or similar form.

7. Analytical Procedures

The analytical methods used for this project are primarily USEPA approved methods and are listed in Tables 1 through 3. Specific analytical method procedures are detailed in the laboratory QA Plan and standard operating procedures (SOPs) of the selected laboratory. These documents may be reviewed by PlaceWorks quality assurance staff during laboratory audits to ensure that project specifications are met. Laboratory audits are discussed in Section 9.2.

7.1 INTERNAL STANDARDS

Internal standards are measured amounts of method-specified compounds added after preparation, or extraction, of a sample. Internal standards are added to samples, controls, and blanks in accordance with method requirements to identify column injection losses, purging losses, or viscosity effects.

Acceptance limits for internal standard recoveries are set forth in the applicable method. If the internal standard recovery falls outside of acceptance criteria, the instrument will be checked for malfunction and reanalysis of the sample will be performed after any problems are resolved.

7.2 RETENTION TIME WINDOWS

Retention time windows will be established as described in SW-846 Method 8000A for applicable analyses of organic compounds. Retention time windows are used for qualitative identification of analytes and are calculated based on multiple, replicated analyses of a respective standard.

Retention times will be checked on a daily basis. Acceptance criteria for retention time windows are established in the referenced method. If the retention time falls outside the respective window, actions will be taken to correct the problem. The instrument must be re-calibrated after any retention time window failure and the affected samples must be reanalyzed.

7.3 METHOD DETECTION LIMITS

The method detection limit (MDL) is the minimum concentration of an analyte, or compound, that can be measured and reported with 99 percent confidence that the concentration is greater than zero. MDLs are established for each method, matrix and analyte, and for each instrument used to analyze project samples. MDLs are derived using the procedures described in 40CFR 136 Appendix B (USEPA 1990a). USEPA requires that MDLs be established on an annual basis. MDLs must be less than applicable reporting limits for each target analyte presented in Tables 2 and 3.

7.4 INSTRUMENT CALIBRATION

Analytical instruments will be calibrated in accordance with the procedures specified in the applicable method. All analytes that are reported shall be present in the initial and continuing calibrations, and these calibrations must meet the acceptance criteria specified in the reference method. Records of standard preparation and instrument calibration will be maintained. Records shall unambiguously trace the preparation of standards and their use in calibration and quantitation of sample results. Calibration records will be traceable to standard materials as described in Section 5.2.

At the onset of analysis, instrument calibrations will be checked using all of the analytes of interest. This applies equally to multi-response analytes. At a minimum, calibration criteria will satisfy method requirements. Analyte concentrations can be determined with either calibration curves or response factors, as defined in the method. Guidance provided in SW-846 should be considered to determine appropriate evaluation procedures.

8. Data Reporting

This section presents reporting requirements relevant to the data produced during all project analytical activities.

8.1 FIELD DATA

Data measured by field instruments will be recorded in field notebooks, laptops, and/or on required field forms. Units of measure for field analyses are identified on the field forms. The field data will be reviewed by the Project or Field Manager to evaluate completeness of the field records and appropriateness of the field methods employed. All field records will be retained in the project files.

8.2 LABORATORY DATA

Analytical data will contain the necessary sample results and quality control data to evaluate the data quality objectives defined for the project. Documentation requirements for laboratory data are defined in USEPA Region IX Laboratory Documentation Requirements for Data Validation (USEPA 1990b). The laboratory reports will be consistent with USEPA Level III documentation and include the following data and summary forms:

- Narrative, cross-reference, chain-of-custody, and method references;
- Analytical results;
- Surrogate recoveries (as applicable);
- Calibration summary;
- Blank results;
- Laboratory control sample recoveries;
- Duplicate sample results or duplicate spike recoveries;
- Sample spike recoveries;
- Instrument tuning summary;
- Associated raw data; and
- Magnetic tape or equivalent upon request.

8. Data Reporting

Data validation criteria are derived from the USEPA Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review (USEPA 1994b and 1994c). The Functional Guidelines provide specific data validation criteria that can be applied to data generated for this investigation.

The laboratory data will be reviewed for compliance with the applicable method and the quality of the data reported. The following summarizes the areas of data validation.

- Holding Times;
- Calibrations;
- Blanks;
- Laboratory Control Samples;
- Matrix Spike/Matrix Spike Duplicates;
- Surrogates/Internal Standards (as applicable);
- Field Quality Control Samples; and
- Compound Identification and Quantification.

The application of data validation criteria is a function of project-specific DQOs. The QA/QC Manager will determine if the data quality objectives for the analytical data have been met. Results of the data validation review will be documented and summarized in the investigation.

8.3 PROCEDURES FOR DATA VALIDATION

Procedures for performing data validation for the types of analyses to be performed for this investigation are documented in the National Functional Guidelines. Data validation will be documented in a manner consistent with the functional guidelines. The results of the data validation will be included in a Data Validation Memorandum. This documentation will be maintained by PlaceWorks in the project files.

8.3.1 Data Qualifiers

The data validation procedures were designed to review each data set and identify biases inherent to the data and determine its usefulness. Data validation flags are applied to those sample results that fall outside of specified tolerance limits, and, therefore, did not meet the program's quality assurance objectives described in Section 3.2. Data validation flags to be used for this project are defined in the National Functional Guidelines. Data validation flags will indicate if results are considered quantitative, estimated, or rejected. Only rejected data are considered unusable for decision-making purposes; however, other qualified data may require further verification.

8. Data Reporting

8.3.2 Project Data Management

Data management is the process of organizing, maintaining, and applying a variety of data to provide a useful and coherent view of the site conditions. Data collected for this investigation include sample collection data, field measurement data, onsite laboratory analytical data, and offsite laboratory analytical data. The data management resources include staff to review and maintain project data, a computerized data management system, and a documentation filing system. The project database management system has the capability to maintain the relationship between sampling locations, samples collected, and filed and laboratory analytical results.

8. Data Reporting

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9. Performance and System Audits

Audit programs are established and directed by PlaceWorks quality assurance staff to ensure that field and laboratory activities are performed in compliance with project controlling documents. This section describes responsibilities, requirements and methods for scheduling, conducting and documenting audits of field and laboratory activities.

9.1 FIELD AUDITS

Field audits focus on appropriateness of personnel assignments and expertise, availability of field equipment, adherence to project controlling documents for sample collection and identification, sample handling and transport, use of QA samples, chain of custody procedures, equipment decontamination and documentation. Field audits are not required, but may be performed in the event significant discrepancies are identified that warrant evaluation of field practices.

9.2 LABORATORY AUDITS

Laboratory audits include reviews of sample handling procedures, internal sample tracking, SOPs, analytical data documentation, QA/QC protocols, and data reporting. Any selected mobile or offsite laboratory will be licensed by the State of California as a certified testing laboratory. If no previous audit has been conducted by PlaceWorks, a scheduled audit will be conducted by the quality assurance staff during the course of this project to ensure the integrity of sample handling and processing by the laboratory.

9.3 DATA AUDITS

Data audits will be performed on analytical results received from the laboratories. These audits will be accomplished through the process of data validation as described in Section 8.3, or may involve a more detailed review of laboratory analytical results. Data audits require the laboratory to submit complete raw data files to PlaceWorks for validation. PlaceWorks chemists will perform a review of the data consistent with the level of effort described in the National Functional Guidelines (USEPA 1994 b and c). This level of validation consists of a detailed review of sample data, including verification of data calculations for calibration and quality control samples to assess if these data are consistent with method requirements. Upon request, the laboratory will make available all supporting documentation in a timely fashion.

9.4 REPORTS TO MANAGEMENT AND RESPONSIBILITIES

Upon completion of any audit, the auditor will submit to the Project Manager and Field Manager a report or memorandum describing any problems or deficiencies identified during the audit. It is the responsibility of the Project Manager to determine if the deviations will result in any adverse effect on the project conclusions. If it is determined that corrective action is necessary, procedures outlined in Section 9.5 will be followed.

9.5 CORRECTIVE ACTION

Corrective actions will be initiated whenever data quality indicators suggest that DQOs have not been met. Corrective actions will begin with identifying the source of the problem. Potential problem sources include failure to adhere to method procedures, improper data reduction, equipment malfunctions, or systemic contamination. The first level of responsibility for identifying the problems and initiating corrective action lies with the analyst/field personnel. The second level of responsibility lies with any person reviewing the data. Corrective actions may include more intensive staff training, equipment repair followed by a more intensive preventive maintenance program, or removal of the source of systemic contamination. Once resolved, the corrective action procedure will be fully documented, and if DQOs were not met, the samples in question must be recollected and/or reanalyzed utilizing a properly functioning system (USEPA 1998).

10. References

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Appendix F Noise and Vibration Technical Analysis

Appendices

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Noise and Vibration Background and Modeling Data

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Maximum Sound Level (L_{max})**. The highest RMS sound level measured during the measurement period.
- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2013, September. Transportation and Construction Vibration Guidance Manual.

LOCAL REGULATIONS AND STANDARDS

also promoted by way of educational programs.

Between July of 2004 and June of 2005, animal services staff responded to 17,077 calls for service. Animal services also returned 1,290 lost pets to their owners and arranged for the adoption of 2,034 pets.



Moreno Valley Animal Shelter

6.3.2 Issues and Opportunities

Irrespective of the efforts of Animal Services and other organizations dedicated to reducing the population of unwanted pets, a large number of unwanted pets are produced every year. Unfortunately, the number of unwanted animals far surpasses the capacity of the shelter and the number of good homes available for adoption.

The need for animal services is expected to grow in proportion to the rate of growth in the local community.

B. ENVIRONMENTAL SAFETY

6.4 NOISE

6.4.1 Background

Noise has long been an accepted part of modern civilization, but excessive noise has become an important environmental concern. Excessive noise can disturb the peace and quiet of neighborhoods. Excessive noise can cause physical and psychological responses. Temporary reactions include, but are not limited to, constriction of blood vessels, secretion of saliva and gastric fluids, changes in heart rate and a feeling of anxiety and discomfort.

Three effects of noise that are of particular concern are interference with speech, interruption of sleep and hearing loss. Sleep interruption can occur when the intruding noise exceeds 45 decibels. Speech interference becomes a problem when the intruding noise is above 60 decibels. Hearing loss can begin to occur with sustained noise levels above 75 decibels.

Section 1092 of Title 25, Chapter 1, Subchapter 1, Article 4, of the California Administrative Code includes noise insulation standards for new multi-family structures (hotels, motels, apartments, condominiums, and other attached dwellings) located within the 60 CNEL contour adjacent to roads, railroads, rapid transit lines, airports or industrial areas. An acoustic analysis is required showing that these multi-family units have been designed to limit interior noise levels with doors and windows closed to 45 CNEL in any habitable room. Title 21 of the California Administration Code (Subchapter 6, Article 2, Section 5014) also specifies that noise levels in all habitable rooms do not exceed 45 CNEL.

6.4.2 Noise Fundamentals

Noise levels are measured on a logarithmic scale in decibels. The measurements are then weighted and added over a specified time period to reflect not only the magnitude of the sound, but also its duration, frequencyand time of occurrence. In this manner, various acoustical scales and units of measurement have been developed such as: equivalent sound levels (Leq), day-night average sound levels (Ldn), Community Noise Equivalent Levels (CNEL's), and

Single Event Noise Exposure Levels (SENEL's).

A-weighted decibels (dBA) approximate the subjective response of the human ear to noise by discriminating against the very low and high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies audible to the human ear. The decibel scale has a value of 1.0 dBA at the threshold of hearing and 140 dBA at the threshold of pain. Each increase of 10 decibels indicates a ten-fold sound energy increase, which is perceived by the human ear as being roughly twice as loud.

Examples of the decibel level of various noise sources are the quiet rustle of leaves (10 dBA), a soft whisper (20 to 30 dBA) and the hum of a small electric clock (40 dBA). Additional examples include the ambient noise in a house kitchen (50dBA), normal conversation at 5 feet (55 dBA) and a busy street at 50 feet (75 dBA).

Day-night average sound levels (Ldn) are a measure of cumulative noise exposure. The Ldn value results from a summation of hourly noise levels over a 24-hour time period with an increased weighting factor applied to the period between 10:00 PM and 7:00 AM. This takes into account the fact that noise that occurs during normal sleeping hours is more annoying. Community Noise Equivalent Levels (CNEL's) is a measure similar to Ldn except it includes an additional penalty for noise that occurs between 7 p.m. and 10 p.m. CNEL values are typically less than one decibel higher than Ldn values.

The Single Event Noise Exposure Level (SENEL) is the appropriate rating scale for a single noise occurrence. The SENEL, given in decibels, is the noise exposure level of a single event measured over the time interval between the initial and final times for which it exceeds the threshold noise level.

For a "line source" of noise such as a heavily traveled roadway, the noise level drops off at a nominal rate of 3.0 decibels for each doubling of distance between the noise source and noise receiver. Environmental factors such as the wind, temperature, the characteristics of the ground (hard or soft) and the air (relative humidity), the presence of grass, shrubs and trees, combine to increase the actual attenuation achieved outside laboratory conditions to 4.5 decibels per doubling of distance. Thus, a noise level of 74.5 decibels at 50 feet from the highway centerline would attenuate to 70.0 decibels at 100 feet, 65.5 decibels at 200 feet, and so forth.

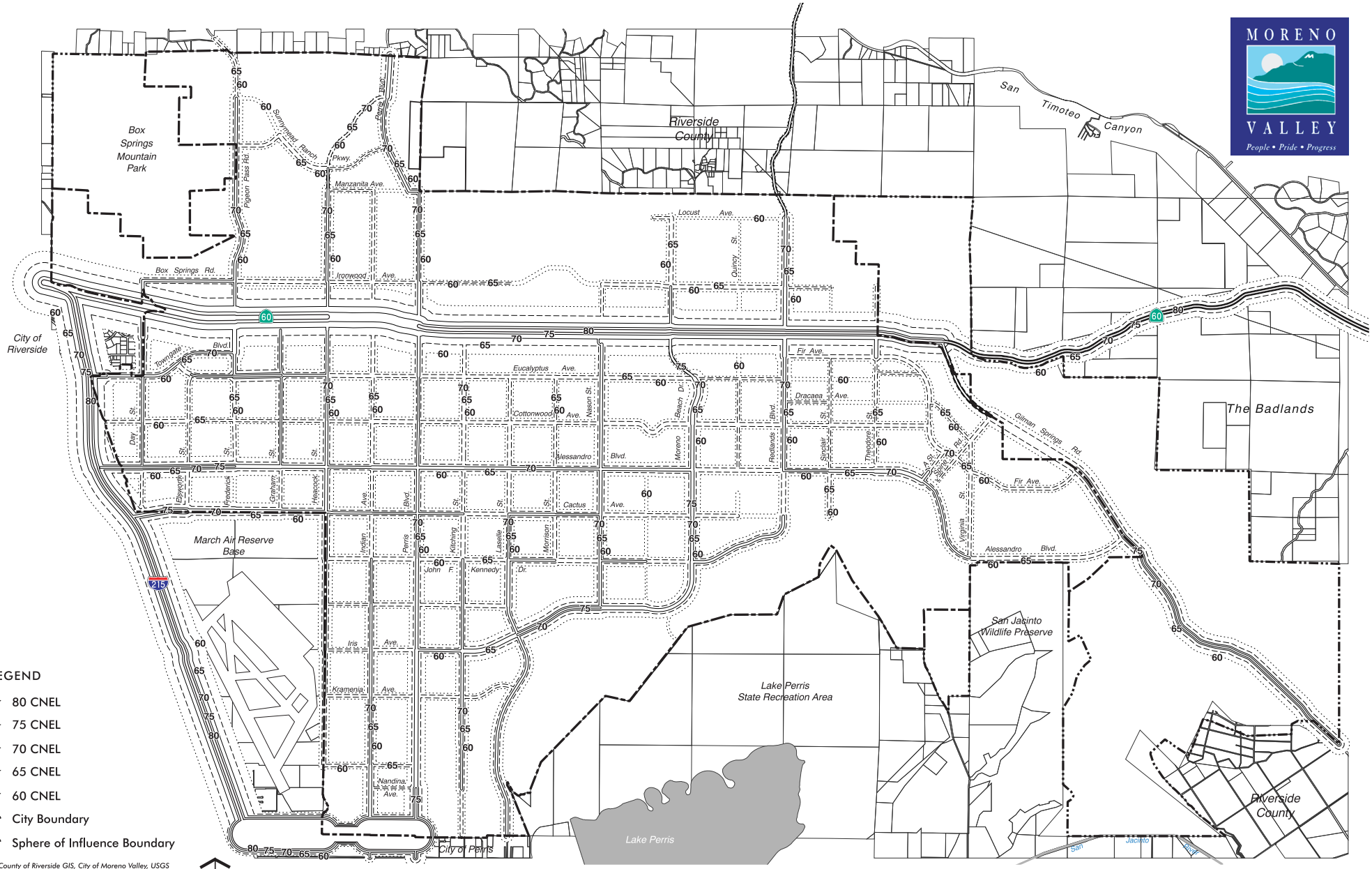
In an area, which is relatively flat and free of barriers, the sound level resulting from a single "point source" drops by 6 decibels for each doubling of distance. This applies to fixed noise sources such as industrial sources and mobile noise sources that are temporarily stationary such as idling trucks.

Important noise sources within the study area include industrial and utility uses, mechanical equipment, loud speakers, aircraft and motor vehicles. Noise levels adjacent to roadways vary with the volume of traffic, the mean vehicular speed, the truck mix and the road cross-section. High traffic volumes and speed along State route 60 and arterial roadways contribute to high noise levels. Noise levels due to air traffic from the joint-use airport at March depend on aircraft characteristics, the number, path, elevation and duration of flights as well as the time of day that flights take place.

The results of the noise analysis prepared for the environmental impact report for the General Plan Update is shown in Figure 6-2. Figure 6-2 can be used as a general guide to determine potential "worst case" future noise levels for planning and design purposes.

6.4.3 Community Responses to Noise

People in general cannot perceive an increase or decrease of 1.0 dBA except in carefully controlled laboratory experiments. A



LEGEND

- 80 CNEL
- 75 CNEL
- 70 CNEL
- 65 CNEL
- 60 CNEL
- City Boundary
- Sphere of Influence Boundary

Sources: County of Riverside GIS, City of Moreno Valley, USGS

0 2,500 5,000 10,000 ft.

North

Buildout Noise Contours

Figure 6-2

City of Moreno Valley
June 2005

3.0 dBA increase is considered noticeable outside of the laboratory. An increase of 5.0 dBA is often necessary before any noticeable change in community response (i.e. complaints) would be expected.

Studies have shown that people respond to changes in long-term noise levels. About 10 percent of the people exposed to traffic noise of 60 Ldn will report being highly annoyed with the noise and 2 percent more people become highly annoyed with each unit of Ldn increase in traffic noise. When traffic noise exceeds 60 Ldn or aircraft noise exceeds 55 Ldn, people begin complaining. Group and legal actions to stop the noise may occur at traffic noise levels near 70 Ldn and aircraft noise levels near 65 Ldn.

Approximately 10 percent of the population has such a low tolerance for noise that they object to any noise not of their own making. Consequently, even in the quietest environment, some complaints will occur. Another 25 percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected.

6.4.4. Planning and Design Considerations

There are many mechanisms available to control noise in the community. A noise ordinance can be adopted to control noise sources, but the best way to minimize the adverse effects of noise is through planning and design.

Planning noise compatible land uses near existing or projected high noise levels is an effective technique. Certain land uses are more compatible with noise than others. Schools, hospitals, churches and single-family residences are relatively sensitive to noise. Multiple-family residential uses are less sensitive to noise than single-family residential uses. Commercial, office and industrial uses are relatively noise tolerant. Where possible, the land use plan places noise tolerant uses within areas impacted by noise from State Route 60, arterial streets and aircraft over flights. The historical land use pattern and other community needs made it impractical to avoid all noise conflicts through land use planning.

Acoustic site planning, architectural design, acoustic construction techniques and noise barriers are effective methods for reducing noise impacts. Acoustic site planning involves the arrangement of lots, buildings, berms and walls to minimize noise conflicts and impacts. Sound walls and berming are often used as sound barriers between residential uses and nonresidential noise sources, such as commercial uses, industrial uses, freeways and other major roadways.

Acoustic architectural design involves the incorporation of noise attenuation strategies in the design of individual structures. Building heights, room arrangements, window size and placement, balcony and courtyard design can be adjusted to shield noise sensitive activities from intrusive sound levels.
Acoustic construction is the treatment of various parts of a building to reduce interior noise levels. Acoustic wall design, doors, ceilings and floors, as well as dense building materials and acoustic windows (double-paned, thick, non-openable, or small windows) are all available options.

6.5 GEOLOGIC HAZARDS

6.5.1 Background

Most of the Moreno Valley study area lies at the eastern margin of a block of the earth's crust known as the “Perris Block.” The Perris Block is a mass of granitic rock, generally bounded by the San Jacinto fault, the Elsinore fault, and the Santa Ana River. The Perris Block has had an apparent history of vertical land movements of several thousand feet.

Chapter 11.80 NOISE REGULATION

11.80.010 Legislative findings.

It is found and declared that:

A. Excessive sound within the limits of the city is a condition which has existed for some time, and the amount and intensity of such sound is increasing.

B. Such excessive sound is a detriment to the public health, safety, and welfare and quality of life of the residents of the city.

C. The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, safety, welfare and quality of life of the city and its inhabitants. (Ord. 740 § 1.2, 2007)

11.80.020 Definitions.

For purposes of this chapter, certain words and phrases used herein are defined as follows:

“A-weighted sound level” means the sound pressure level in decibels as measured with a sound level meter using the A-weighting network. The unit of measurement is the dB(A).

“Commercial” means all uses of land not otherwise classified as residential, as defined in this section.

“Construction” means any site preparation, and/or any assembly, erection, repair, or alteration, excluding demolition, of any structure, or improvements to real property.

“Continuous airborne sound” means sound that is measured by the slow-response setting of a meter manufactured to the specifications of ANSI Section 1.4-1983 (R2006) “Specification for Sound Level Meters,” or its successor.

“Daytime” means eight a.m. to ten p.m. the same day.

“Decibel” (dB) means a unit for measuring the amplitude of sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) microPascals (twenty (20) microNewtons per square meter.)

“Demolition” means any dismantling, intentional destruction or removal of structures or other improvements to real property.

“Disturb” means to interrupt, interfere with, or hinder the enjoyment of peace or quiet or the normal listening activities or the sleep, rest or mental concentration of the hearer.

“Emergency” means any occurrence or set of circumstances involving actual or imminent physical trauma or significant property damage which necessitates immediate action. Economic loss alone shall not constitute an emergency. It shall be the burden of an alleged violator to prove an “emergency.”

“Emergency work” means any work made necessary to restore property to a safe condition following an emergency, or to protect persons or property threatened by an imminent emergency, to the extent such work is, in fact, necessary to protect persons or property from exposure to imminent danger or damage.

“Frequency” means the number of complete oscillation cycles per unit of time.

"Impulsive sound" means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and discharge of firearms.

"Nighttime" means 10:01 p.m. to 7:59 a.m. the following day.

"Noise disturbance" means any sound which:

1. Disturbs a reasonable person of normal sensitivities;

2. Exceeds the sound level limits set forth in this chapter; or

3. Is plainly audible as defined in this section. Where no specific distance is set forth for the determination of audibility, references to noise disturbance shall be deemed to mean plainly audible at a distance of two hundred (200) feet from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property.

"Person" means any person, person's firm, association, copartnership, joint venture, corporation, or any entity public or private in nature.

"Plainly audible" means that the sound or noise produced or reproduced by any particular source, can be clearly distinguished from ambient noise by a person using his/her normal hearing faculties.

"Public right-of-way" means any street, avenue, boulevard, sidewalk, bike path or alley, or similar place normally accessible to the public which is owned or controlled by a governmental entity.

"Public space" means any park, recreational or community facility, or lot which contains at least one building that is open to the general public during its hours of operation.

"Residential" means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.

"Sound" means an oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium capable of producing an auditory impression. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

"Sound level" means the weighted sound pressure level as measured in dB(A) by a sound level meter and as specified in American National Standards Institute (ANSI) specifications for sound-level meters (ANSI Section 1.4-1971 (R1976)). If the frequency weighting employed is not indicated, the A-weighting shall apply.

"Sound level meter" means an instrument, demonstrably capable of accurately measuring sound levels as defined above.

All technical definitions not defined above shall be in accordance with applicable publications and standards of the American National Standards Institute (ANSI). (Ord. 740 § 1.2, 2007)

11.80.030 Prohibited acts.

A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.

B. Sound causing permanent hearing loss.

1. Sound level limits. Based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health, Table 1 and Table 1-A specify sound level limits which, if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where the sound levels are being exceeded. No sound shall be permitted within the city which exceeds the parameters set forth in Tables 11.80.030-1 and 11.80.030-1-A of this chapter:

Table 11.80.030-1

MAXIMUM CONTINUOUS SOUND LEVELS*

Duration per Day Continuous Hours	Sound level [db(A)]
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

* When the daily sound exposure is composed of two or more periods of sound exposure at different levels, the combined effect of all such periods shall constitute a violation of this section if the sum of the percent of allowed period of sound exposure at each level exceeds 100 percent

Table 11.80.030-1A

MAXIMUM IMPULSIVE SOUND LEVELS

Number of Repetitions per 24-Hour Period	Sound level [dB(A)]
1	145
10	135
100	125

2. Exemptions. No violation shall exist if the only persons exposed to sound levels in excess of those listed in Tables 11.80.030-1 and 11.80.030-1A are exposed as a result of:

a. Trespass;

b. Invitation upon private property by the person causing or permitting the sound; or

c. Employment by the person or a contractor of the person causing or permitting the sound.

C. Nonimpulsive Sound Decibel Limits. No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimplusive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table 11.80.030-2

MAXIMUM SOUND LEVELS (IN dB(A)) FOR SOURCE LAND USES

Residential		Commercial	
Daytime	**Nighttime**	**Daytime**	**Nighttime**
60	55	65	60

D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

1. Motor Vehicles. No person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits in Table 11.80.030-2 when the vehicle(s) are not otherwise subject to noise regulations provided for by the California Vehicle Code.

2. Radios, Televisions, Electronic Audio Equipment, Musical Instruments or Similar Devices from a Stationary Source. No person shall operate, play or permit the operation or playing of any radio, tape player, television, electronic audio equipment, musical instrument, sound amplifier or other mechanical or electronic sound making device that produces, reproduces or amplifies sound in such a manner as to create a noise disturbance. However, this subsection shall not apply to any use or activity exempted in subsection E of this section and any use or activity for which a special permit has been issued pursuant to Section 11.80.040.

3. Radios, Electronic Audio Equipment, or Similar Devices from a Mobile Source Such as a Motor Vehicle. Sound amplification or reproduction equipment on or in a motor vehicle is subject to regulation in accordance with the California Vehicle Code when upon the public right-of-way. When upon public space or publicly owned property other than the public right-of-way or upon private property open to the public, sound amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a distance of fifty (50) feet in any direction from the vehicle.

4. Portable, Hand-Held Music or Sound Amplification or Reproduction Equipment. Such equipment shall not be operated on a public right-of-way, public space or other publicly owned property in such a manner as to be plainly audible at a distance of fifty (50) feet in any direction from the operator.

5. Loudspeakers and Public Address Systems.

a. Except as permitted by Section 11.80.040, no person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any commercial purpose:

1. Which produces, reproduces or amplifies sound in such a manner as to create a noise disturbance; or

2. During nighttime hours on a public right-of-way, public space or other publicly owned property.

b. No person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any noncommercial purpose, during nighttime hours in such a manner as to create a noise disturbance.

6. Animals. No person shall own, possess or harbor an animal or bird that howls, barks, meows, squawks, or makes other sounds that:

a. Create a noise disturbance;

b. Are of frequent or continued duration for ten (10) or more consecutive minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound; or

c. Are intermittent for a period of thirty (30) or more minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound.

7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.

8. Emergency Signaling Devices. No person shall intentionally sound or permit the sounding outdoors of any fire, burglar or civil defense alarm, siren or whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as follows:

a. Testing of a stationary emergency signaling device shall not occur between seven p.m. and seven a.m. the following day;

b. Testing of a stationary emergency signaling device shall use only the minimum cycle test time, in no case to exceed sixty (60) seconds;

c. Testing of a complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall only occur only on weekdays between seven a.m. and seven p.m. and shall be exempt from the time limit specified in subsection (D)(8)(2) of this section.

9. Power Tools. No person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours so as to cause a noise disturbance across a residential real property boundary.

10. Pumps, Air Conditioners, Air-Handling Equipment and Other Continuously Operating Equipment. Notwithstanding the general prohibitions of subsection a of this section, no person shall operate or permit the operation of any pump, air conditioning, air-handling or other continuously operating motorized equipment in a state of disrepair or in a manner which otherwise creates a noise disturbance distinguishable from normal operating sounds.

E. Exemptions. The following uses and activities shall be exempt from the sound level regulations except the maximum sound levels provided in Tables 11.80.030-1 and 11.80.030-1A:

1. Sounds resulting from any authorized emergency vehicle when responding to an emergency call or acting in time of an emergency.

2. Sounds resulting from emergency work as defined in Section 11.80.020

3. Any aircraft operated in conformity with, or pursuant to, federal law, federal air regulations and air traffic control instruction used pursuant to and within the duly adopted federal air regulations; and any aircraft operating under technical difficulties in any kind of distress, under emergency orders of air traffic control, or being operated pursuant to and subsequent to the declaration of an emergency under federal air regulations.

4. All sounds coming from the normal operations of interstate motor and rail carriers, to the extent that local regulation of sound levels of such vehicles has been preempted by the Noise Control Act of 1972 (42 U.S.C. § 4901 et seq.) or other applicable federal laws or regulations

5. Sounds from the operation of motor vehicles, to the extent they are regulated by the California Vehicle Code.

6. Any constitutionally protected noncommercial speech or expression conducted within or upon a any public right-of-way, public space or other publicly owned property constituting an open or a designated public forum in compliance with any applicable reasonable time, place and manner restrictions on such speech or expression or otherwise pursuant to legal authority.

7. Sounds produced at otherwise lawful and permitted city-sponsored events, organized sporting events, school assemblies, school playground activities, by permitted fireworks, and by permitted parades on public right-of-way, public space or other publicly owned property.

8. An event for which a temporary use permit or special event permit has been issued under other provisions of this code, where the provisions of Section 11.80.040 are met, the permit granted expressly grants an exemption from specific standards contained in this chapter, and the permittee and all persons under the permittee's reasonable control actually comply with all conditions of such permit. Violation of any condition of such a permit related to sound or sound equipment shall be a violation of this chapter and punishable as such.

F. Nothing in this chapter shall be construed to limit, modify or repeal any other regulation elsewhere in this code relating to the regulation of noise sources, nor shall any such other regulation be read to permit the emission of noise in violation of any provision of this chapter. (Ord. 740 § 1.2, 2007)

11.80.040 Special provisions for temporary use and special event permits.

The exemption by permit set forth in Section 11.80.030(E)(8) shall be subject to the following requirements and conditions:

A. The permit application shall include the name, address and telephone number of the permit applicant; the date, hours and location for which the permit is requested; and the nature of the event or activity. It shall also specify the types of sounds and/or sound equipment to be permitted, the proposed duration of such sound, the specific standards from which the sound is to be exempted, and the reasons for each requested exemption.

B. The permit shall be issued provided the proposed activity meets the requirements of this section and the issuing official determines that the sound to be emitted at the event as proposed would not be detrimental to the public health, safety or welfare, that the event cannot reasonably achieve its legitimate aims and purposes without the exemption and that the sound levels proposed will not unreasonably damage the peace and quiet enjoyment of the lawful users of surrounding properties, nor constitute a public nuisance.

C. The official issuing the permit may prescribe any reasonable conditions or requirements he/she deems necessary to minimize noise disturbances upon the community or the surrounding neighborhood, and/or to protect the health, safety or welfare of the public, including participants in the permitted event, including use of mufflers, screens or other sound-attenuating devices.

D. Any permit granted must be in writing and shall contain all conditions upon which the permit shall be effective.

E. No more than six events requiring a sound limit exemption may be held at any particular location upon privately owned or controlled property per calendar year, provided further that the number of events shall not exceed the number permitted under the regulations for the type of permit issued. For purposes of this subsection, "location" means a legal parcel of real property or a complete shopping or commercial center or mall sharing common parking and access even if comprised of multiple legal parcels.

F. The exemption from sound limits under such permit shall not exceed maximum period of four hours in one twenty-four (24) hour day.

G. The permit will only be granted for hours between nine a.m. and ten p.m. on all days other than Friday and Saturday; and, on Friday and Saturday, between the hours of nine a.m. and one a.m. of the following day, except in the following circumstances:

1. A permit may be granted for hours between nine a.m. on New Year's Eve and one a.m. the following day (New Year's Day).

2. A permit may be granted for hours between nine a.m. and two a.m. the following day if there are no residences, hospitals, or nursing homes within a 0.5 mile radius of the property where the function is taking place.

H. Functions for which the permits are issued shall be limited to a continuous airborne sound level not to exceed seventy (70) dB(A), as measured two hundred (200) feet from the real property boundary of the source property if on private property, or from the source if on public right-of-way, public space or other publicly owned property. (Ord. 740 § 1.2, 2007)

11.80.050 Measurement or assessment of sound.

A. Measurement With Sound Meter.

1. The measurement of sound shall be made with a sound level meter meeting the standards prescribed by ANSI Section 1.4-1983 (R2006). The instruments shall be maintained in calibration and good working order. A calibration check shall be made of the system at the time of any sound level measurement. Measurements recorded shall be taken so as to provide a proper representation of the source of the sound. The microphone during measurement shall be positioned so as not to create any unnatural enhancement or diminution of the measured sound. A windscreen for the microphone shall be used at all times. However, a violation of this chapter may occur without the occasion of the measurements being made as otherwise provided.

2. The slow meter response of the sound level meter shall be used in order to best determine the average amplitude.

3. The measurement shall be made at any point on the property into which the sound is being transmitted and shall be made at least three feet away from any ground, wall, floor, ceiling, roof and other plane surface.

4. In case of multiple occupancy of a property, the measurement may be made at any point inside the premises to which any complainant has right of legal private occupancy; provided that the measurement shall not be made within three feet of any ground, wall, floor, ceiling, roof or other plane surface.

5. All measurements of sound provided for in this chapter will be made by qualified officials of the city who are designated by the city manager or designee to operate the apparatus used to make the measurements.

B. Assessment Without Sound Level Meter. Any police officer, code enforcement officer, or other official designated by the city manager or designee who hears a noise or sound that is plainly audible, as defined in Section 11.80.020, in violation of this chapter, may enforce this chapter and shall assess the noise or sound according to the following standards:

1. The primary means of detection shall be by means of the official's normal hearing faculties, not artificially enhanced.

2. The official shall first attempt to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates so that the official can readily identify the offending source of the sound or noise and the distance involved. If the official is unable to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates, then the official shall confirm the source of the sound or noise by approaching the suspected vehicle or real property until the official is able to obtain a direct line of sight and hearing, and confirm the source of the sound or noise that was heard at the place of the original assessment of the sound or noise.

3. The official need not be required to identify song titles, artists, or lyrics in order to establish a violation. (Ord. 740 § 1.2, 2007)

11.80.060 Violation.

A. Violation of Sound Level Limits. Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine not to exceed one thousand dollars ($1,000.00) and/or six months in the county jail, or both. Notwithstanding the foregoing, any violation of the provisions of this chapter may, in the discretion of the citing officer or the city attorney, be cited and/or prosecuted as an infraction or be subject to civil citation pursuant to Chapter 1.10.

B. Joint and Several Responsibility. In addition to the person causing the offending sound, the owner, tenant or lessee of property, or a manager, overseer or agent, or any other person lawfully entitled to possess the property from which the offending sound is emitted at the time the offending sound is emitted, shall be responsible for compliance with this chapter if the additionally responsible party knows or should have known of the offending noise disturbance. It shall not be a lawful defense to assert that some other person caused the sound. The lawful possessor or operator of the premises shall be responsible for operating or maintaining the premises in compliance with this chapter and may be cited regardless of whether or not the person actually causing the sound is also cited.

C. Violation May be Declared a Public Nuisance. The operation or maintenance of any device, equipment, instrument, vehicle or machinery in violation of any provisions of this chapter which endangers the public health, safety and quality of life of residents in the area is declared to be a public nuisance, and may be subject to abatement summarily or by a restraining order or injunction issued

by a court of competent jurisdiction. (Ord. 824 § 1.2, 2011; Ord. 740 § 1.2, 2007)

View the mobile version.

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Demolition	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20	89.6	300.0	0.0	
Excavator	No	40	80.7	300.0	0.0	
Dozer	No	40	81.7	300.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	74.0	67.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	66.1	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.0	69.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Prep	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	300.0	0.0
Tractor	No	40	84.0		300.0	0.0
Front End Loader	No	40		79.1	300.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	66.1	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	68.4	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	63.5	59.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.4	67.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Rough Grading	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		300.0	0.0
Dozer	No	40		81.7	300.0	0.0
Tractor	No	40	84.0		300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	69.4	65.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	66.1	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	68.4	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	69.4	69.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Utility Trenching	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Excavator	No	40	80.7	300.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building Construction	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	300.0	0.0
Tractor	No	40	84.0		300.0	0.0
Front End Loader	No	40		79.1	300.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Generator	65.1	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	68.4	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	63.5	59.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.4	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Paving	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	300.0	0.0
Pavement Scarafier	No	20		89.5	300.0	0.0
Roller	No	20		80.0	300.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	61.7	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	73.9	66.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	64.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.9	68.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Architectural Coating	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	300.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Compressor (air)	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	62.1	58.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/18/2020
Case Description: MORE-36

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Utility Trenching	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Excavator	No	40	80.7	300.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.1	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TRAFFIC NOISE INCREASE CALCULATIONS

Project Name Moreno Valley Elementary School
Figure Figure 1: Existing Baseline Volumes

AM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name:	Lasselle St/Cottonwood Ave	Morrison St/Cottonwood Ave	Nason St/Eucalyptus Ave	Nason St/Cottonwood Ave	Nason St/Bay Ave	Nason St/Alessandro Blvd	Moreno Beach Dr/Cottonwood Ave	Moreno Beach Dr/Alessandro Blvd	Nason St/Project Driveway	Project Driveway/Bay Ave	Nasson St/Dracaea Ave
NBL	83	28	68	45	0	81	4	132	0	0	203
NBT	291	192	651	664	719	523	520	508	721	0	825
NBR	50	88	142	4	1	29	34	33	0	0	11
SBL	23	69	9	33	1	58	24	9	0	0	10
SBT	241	148	1048	895	939	765	402	377	940	0	978
SBR	68	73	86	132	0	112	12	87	0	0	234
EBL	27	71	204	113	0	67	12	72	0	0	130
EBT	151	208	185	58	0	186	45	123	0	2	9
EBR	37	11	207	43	0	94	5	68	0	0	81
WBL	57	58	121	6	2	113	43	46	0	0	28
WBT	272	249	118	58	0	395	62	241	0	4	23
WBR	43	107	21	87	2	133	45	10	0	0	9

PM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name:	Lasselle St/Cc	Morrison St/C	Nason St/Euc	Nason St/Cot	Nason St/Bay	Nason St/Ale:	Moreno Beach	Moreno Beach	Nason St/Proj	Project Drivew	Nasson St/Dra
NBL	41	7	55	30	0	79	6	60	0	0	46
NBT	273	100	710	791	902	697	487	448	902	0	998
NBR	22	27	239	3	1	96	34	46	0	0	16
SBL	13	18	11	27	0	65	57	12	0	0	12
SBT	215	71	865	766	745	594	675	593	745	0	835
SBR	23	18	77	135	0	81	24	71	0	0	112
EBL	19	26	110	103	0	114	12	94	0	0	108
EBT	160	162	134	41	0	325	30	238	0	1	3
EBR	74	9	75	37	0	74	6	77	0	0	42
WBL	21	24	165	8	1	17	36	60	0	0	11
WBT	133	165	137	48	0	230	34	91	0	1	5
WBR	10	16	16	31	0	71	45	16	0	0	7

Project Name Moreno Valley Elementary School
Figure Figure 7: Existing Plus Project Volumes

AM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Name:	Lasselle St/Cottonwood Ave	Morrison St/Cottonwood Ave	Nason St/Eucalyptus Ave	Nason St/Cottonwood Ave	Nason St/Bay Ave	Nason St/Alessandro Blvd	Moreno Beach Dr/Cottonwood Ave	Moreno Beach Dr/Alessandro Blvd	Nason St/Project Driveway	Project Driveway/Bay Ave
NBL	83	28	83	133	0	81	4	132	0	0
NBT	300	192	680	752	753	540	520	508	721	0
NBR	50	105	157	63	35	29	34	33	86	0
SBL	57	86	9	33	225	87	24	24	0	0
SBT	251	148	1082	998	998	780	402	392	1274	0
SBR	68	73	86	132	0	127	46	104	0	0
EBL	27	71	204	113	0	84	27	72	0	258
EBT	168	260	185	58	0	186	60	123	0	2
EBR	37	11	224	146	0	94	20	68	0	0
WBL	57	73	138	75	2	113	43	46	0	0
WBT	287	293	118	58	0	395	96	258	0	4
WBR	72	122	21	87	2	167	45	10	293	0

PM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Name:	Lasselle St/Co	Morrison St/C	Nason St/Eucc	Nason St/Cott	Nason St/Bay	Nason St/Ales	Moreno Beach	Moreno Beach	Nason St/Proj	Project Drivew
NBL	41	7	59	55	0	79	6	60	0	0
NBT	276	100	718	816	910	701	487	448	902	0
NBR	22	31	243	20	9	96	34	46	20	0
SBL	21	22	11	27	51	73	57	16	0	0
SBT	217	71	873	789	762	598	675	597	824	0
SBR	23	18	77	135	0	85	32	75	0	0
EBL	19	26	110	103	0	118	16	94	0	59
EBT	164	174	134	41	0	325	34	238	0	1
EBR	74	9	79	60	0	74	10	77	0	0
WBL	21	28	169	24	1	17	36	60	0	0
WBT	137	178	137	48	0	230	42	95	0	1
WBR	18	20	16	31	0	79	45	16	84	0

	11.
Nasson St/Dracaea Ave	
	232
	884
	11
	10
	1047
	234
	130
	9
	115
	28
	23
	9
	11.
Nasson St/Dra	
	54
	1015
	16
	12
	851
	112
	108
	3
	50
	11
	5
	7

Project Name Moreno Valley Elementary School
Figure Figure 4: Cumulative Baseline Volumes

AM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name:	Lasselle St/Cottonwood Ave	Morrison St/Cottonwood Ave	Nason St/Eucalyptus Ave	Nason St/Cottonwood Ave	Nason St/Bay Ave	Nason St/Alessandro Blvd	Moreno Beach Dr/Cottonwood Ave	Moreno Beach Dr/Alessandro Blvd	Nason St/Project Driveway	Project Driveway/Bay Ave	Nasson St/Dracaea Ave
NBL	98	31	82	57	0	109	15	149	0	0	223
NBT	337	224	783	795	856	617	648	590	858	0	984
NBR	88	97	161	4	1	43	39	36	0	0	12
SBL	25	76	10	42	1	71	26	14	0	0	11
SBT	270	167	1197	1047	1119	920	466	428	1120	0	1144
SBR	75	80	95	155	0	123	20	116	0	0	257
EBL	30	78	224	127	0	85	35	82	0	0	143
EBT	190	253	207	65	0	252	50	135	0	2	10
EBR	65	12	252	71	0	196	10	75	0	0	89
WBL	73	64	137	7	2	126	48	85	0	0	31
WBT	306	281	138	68	0	442	68	295	0	4	25
WBR	47	118	31	107	2	146	50	24	0	0	10

PM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name:	Lasselle St/Co	Morrison St/C	Nason St/Euc	Nason St/Cot	Nason St/Bay	Nason St/Ale	Moreno Beacl	Moreno Beacl	Nason St/Pro	Project Drivev	Nasson St/Dr
NBL	72	8	88	60	0	168	14	79	0	0	51
NBT	310	119	848	958	1103	863	584	515	1103	0	1193
NBR	43	30	273	3	1	148	38	51	0	0	18
SBL	14	20	12	50	0	97	63	16	0	0	13
SBT	253	93	1030	914	902	710	825	684	902	0	1011
SBR	25	20	85	163	0	89	51	122	0	0	123
EBL	21	29	121	122	0	132	28	113	0	0	119
EBT	187	189	156	50	0	425	33	262	0	1	3
EBR	92	10	94	52	0	127	19	85	0	0	46
WBL	56	26	197	9	1	20	42	88	0	0	12
WBT	173	209	156	56	0	257	37	140	0	1	6
WBR	11	18	23	41	0	78	50	30	0	0	8

Project Name Moreno Valley Elementary School
Figure Figure 9: Cumulative Plus Project Volumes

AM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name:	Lasselle St/Cottonwood Ave	Morrison St/Cottonwood Ave	Nason St/Eucalyptus Ave	Nason St/Cottonwood Ave	Nason St/Bay Ave	Nason St/Alessandro Blvd	Moreno Beach Dr/Cottonwood Ave	Moreno Beach Dr/Alessandro Blvd	Nason St/Project Driveway	Project Driveway/Bay Ave	Nasson St/Dracaea Ave
NBL	98	31	97	145	0	109	15	149	0	0	252
NBT	346	224	812	883	890	634	648	590	858	0	1043
NBR	88	114	176	63	35	43	39	36	86	0	12
SBL	59	93	10	42	225	100	26	29	0	0	11
SBT	280	167	1231	1150	1178	935	466	443	1454	0	1213
SBR	75	80	95	155	0	138	54	133	0	0	257
EBL	30	78	224	127	0	102	50	82	0	258	143
EBT	207	305	207	65	0	252	65	135	0	2	10
EBR	65	12	269	174	0	196	25	75	0	0	123
WBL	73	79	154	76	2	126	48	85	0	0	31
WBT	321	325	138	68	0	442	102	312	0	4	25
WBR	76	133	31	107	2	180	50	24	293	0	10

PM

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Name:	Lasselle St/Cc	Morrison St/C	Nason St/Eucc	Nason St/Cott	Nason St/Bay	Nason St/Ales	Moreno Beach	Moreno Beach	Nason St/Proj	Project Drivew	Nasson St/Drc
NBL	72	8	92	85	0	168	14	79	0	0	59
NBT	313	119	856	983	1111	867	584	515	1103	0	1210
NBR	43	34	277	20	9	148	38	51	20	0	18
SBL	22	24	12	50	51	105	63	20	0	0	13
SBT	255	93	1038	937	919	714	825	688	981	0	1027
SBR	25	20	85	163	0	93	59	126	0	0	123
EBL	21	29	121	122	0	136	32	113	0	59	119
EBT	191	201	156	50	0	425	37	262	0	1	3
EBR	92	10	98	75	0	127	23	85	0	0	54
WBL	56	30	201	25	1	20	42	88	0	0	12
WBT	177	222	156	56	0	257	45	144	0	1	6
WBR	19	22	23	41	0	86	50	30	84	0	8

RD 77-108 Summary

	dBA CNEL at 50 Feet											
Roadway Segment	Existing	Existing Plus Proj	Futur No Proj	Fut Plus Proj	Project Increase	Cummulative Increase	Project Cummulative Contribution	Existing Ambient >65	Increase > 3 dB	Cumulative > 3 dB	Proj Contribution > 1 dB	Impact?
Lasselle Street- north of Cottonwood Avenue	66.7	67.2	67.2	67.7	0.5	1.0	0.4	yes	no	no	no	No
Lasselle Street - Cottonwood Avenue to Alessandro Boulevard	68.3	68.4	69.2	69.3	0.1	1.0	0.1	yes	no	no	no	No
Cottonwood Avenue - Lasselle Street to Morrison Street	67.3	67.9	68.1	68.7	0.6	1.4	0.5	yes	no	no	no	No
Cottonwood Avenue - west of Lasselle Street	67.5	67.7	68.3	68.4	0.2	1.0	0.2	yes	no	no	no	No
Morrison Street - north of Cottonwood Avenue	67.7	67.9	68.2	68.4	0.2	0.7	0.2	yes	no	no	no	No
Morrison Street - Cottonwood Avenue to Alessandro Boulevard	66.7	67.0	67.3	67.5	0.3	0.8	0.2	yes	no	no	no	No
Cottonwood Avenue - Morrison Street to Nason Street	68.4	69.2	69.0	69.7	0.8	1.3	0.7	yes	no	no	no	No
Cottonwood Avenue - Lasselle Street to Morrison Street	67.5	68.1	68.1	68.6	0.6	1.1	0.5	yes	no	no	no	No
Nason Street - north of Eucalyptus Avenue	71.4	71.5	72.0	72.2	0.1	0.8	0.1	yes	no	no	no	No
Nason Street - Eucalyptus Avenue to Cottonwood Avenue	73.0	73.3	73.7	73.9	0.2	0.9	0.2	yes	no	no	no	No
Eucalyptus Avenue- east of Nason Street	66.1	66.3	66.7	66.9	0.2	0.8	0.2	yes	no	no	no	No
Eucalyptus Avenue- west of Nason Street	67.7	67.9	68.3	68.5	0.2	0.7	0.1	yes	no	no	no	No
Nason Street - Eucalyptus Avenue to Cottonwood Avenue	71.2	71.6	71.9	72.3	0.4	1.1	0.4	yes	no	no	no	No
Cottonwood Avneu- east of Nason (Residential land use)	62.2	64.0	62.9	64.5	1.8	2.3	1.6	no	no	no	yes	No
Cottonwood Avenue - Morrison Streetto Nason Sttreet (Residential)	66.0	67.6	66.9	68.2	1.5	2.1	1.3	yes	no	no	yes	No
Nason Street - south of Bay	71.7	72.0	72.5	72.7	0.3	1.0	0.3	yes	no	no	no	No
Nason Street - Alessandro Boulevard to Bay Avenue	71.7	72.0	72.4	72.7	0.3	1.0	0.3	yes	no	no	no	No
Nason Street - Alessandro Boulevard to Cactus Avenue	71.6	71.7	72.5	72.6	0.1	1.0	0.1	yes	no	no	no	No
Alessandro Boulevard - east of Nason Street	69.1	69.4	69.8	70.1	0.3	1.0	0.2	yes	no	no	no	No
Alessandro Boulevard -Morrison Street to Nason Street	69.1	69.3	70.2	70.4	0.1	1.2	0.1	yes	no	no	no	No
Moreno Beach Drive - north of Cottonwood Avenue	69.6	69.8	70.5	70.6	0.2	1.1	0.2	yes	no	no	no	No
Moreno Beach Drive - Cottonwood to Alessandro Boulevard	70.5	70.6	71.4	71.4	0.1	0.9	0.1	yes	no	no	no	No
Cottonwood Avenue - east of Moreno Beach	62.3	63.1	62.8	63.5	0.8	1.2	0.7	no	no	no	no	No
Cottonwood Avenue- west of Moreno Beach (Residential)	60.9	63.5	62.4	64.4	2.6	3.5	2.0	no	no	yes	yes	No
Moreno Beach Drive - Cottonwood Avenue to Alessandro Boulevard	70.9	71.1	71.6	71.7	0.2	0.9	0.2	yes	no	no	no	No
Moreno Beach Drive- south of Alessandro Boulevard	71.2	71.2	71.9	71.9	0.1	0.7	0.0	yes	no	no	no	No
Alessandro Boulevard - east of Moreno Beach Drive	67.2	67.4	68.2	68.4	0.3	1.3	0.2	yes	no	no	no	No
Alessandro Boulevard - east of Nason Street	69.1	69.3	69.8	70.0	0.2	0.9	0.2	yes	no	no	no	No
Nason Street - project to Cottonwood Avenue	71.7	73.1	72.5	73.7	1.4	2.0	1.2	yes	no	no	yes	No
Nason Street - project to Bay Avenue (undeveloped)	71.7	72.7	72.5	73.3	1.0	1.6	0.8	yes	no	no	no	No
Nason Street - north of Dracaea Avenue	71.7	71.9	72.3	72.5	0.2	0.9	0.2	yes	no	no	no	No
Nason Street - south of Dracaea Avenue	71.5	71.8	72.1	72.4	0.4	1.0	0.3	yes	no	no	no	No
Dracaea Avenue - east of Nason Street	55.0	55.0	55.4	55.4	0.0	0.4	0.0	no	no	no	no	No
Dracaea Avenue - west of Nason Street	63.7	64.1	64.1	64.5	0.4	0.8	0.4	no	no	no	no	No

Note: Day/Evening/Night splits defaults from Riverside County General Plan Appendix I-1, Noise Element data used: 69.5/12.9/9.6

Riverside, County of. December 2015. County of Riverside General Plan, Appendix I-1, Noise Elemetn Data

Traffic Noise Calculator: FHWA 77-108 **Existing Condition**

Output						Inputs											
dBA at 50 feet			Distance to CNEL Contour														
$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
63.2	66.1	66.7	23	74	234	Lasselle - N of Cottonwood Ave	9,286	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
64.8	67.7	68.3	34	107	339	Lasselle - Cottonwood Ave to Alessandro Boulevard	10,171	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
63.8	66.6	67.3	27	84	266	Cottonwood Ave - Lasselle to Morrison	7,987	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.0	66.8	67.5	28	88	280	Cottonwood Ave - west of Lasselle Ave	8,549	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.2	67.1	67.7	30	93	295	Morrison Street - North of Cottonwood Ave	8,844	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
63.2	66.1	66.7	23	74	235	Morrison Street - Cottonwood Avenue to Alessandro Blvd	7,035	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.9	67.7	68.4	34	109	344	Cottonwood Ave - Morrison to Nason St	10,439	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
64.0	66.9	67.5	28	89	281	Cottonwood Ave - Lasselle to Morrison	8,576	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
67.9	70.8	71.4	69	218	690	Nason St - North of Eucalyptus	27,055	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.5	72.4	73.0	100	316	1000	Nason St - Eucalyptus to Cottonwood	29,977	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
62.6	65.5	66.1	20	64	204	Eucalyptus - East of Nason St	7,987	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.2	67.1	67.7	30	94	297	Eucalyptus - West of Nason St	11,632	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.7	70.6	71.2	66	208	658	Nason St - Eucalyptus to Cottonwood	25,782	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
58.7	61.5	62.2	8	26	82	Cottonwood - east of Nason (Residential land use)	3,296	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
62.5	65.4	66.0	20	63	201	Cottonwood Ave - Morrison to Nason St (Residential)	6,017	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.2	71.1	71.7	74	235	743	Nason St - South of Bay	22,258	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.2	71.0	71.7	73	232	733	Nason St - Alessandro to Bay	22,218	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
68.1	70.9	71.6	72	227	718	Nason St - Alessandro to Cactus Ave	21,508	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.6	68.5	69.1	41	129	409	Alessandro Blvd - east of Nason St	12,248	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.6	68.5	69.1	41	130	410	Alessandro Blvd -Morrison to Nason	12,529	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
66.1	68.9	69.6	45	144	454	Moreno Beach - north of Cottonwood Ave	13,601	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.0	69.9	70.5	56	178	564	Moreno Beach - Cottonwood to Alessandro Blvd	13,508	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
58.8	61.7	62.3	9	27	85	Cottonwood Ave - east of Moreno Beach	3,390	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
57.4	60.3	60.9	6	19	61	Cottonwood - west of Moreno Beach (Residential)	1,876	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
67.4	70.2	70.9	61	193	610	Moreno Beach - Cottonwood to Alessandro Blvd	14,245	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.7	70.5	71.2	65	207	655	Moreno Beach - south of Alessandro Blvd	15,598	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
63.7	66.5	67.2	26	82	260	Alessandro - east of Moreno Beach	6,191	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
65.6	68.5	69.1	41	129	407	Alessandro Blvd - east of Nason St	9,688	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
68.2	71.1	71.7	74	235	743	Nason - project to cottonwood (chuch/residential land uses to e	22,258	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.2	71.1	71.7	74	235	743	Nason - project to Bay (undeveloped)	22,258	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.2	71.0	71.7	75	236	747	Nason - north of Dracaea Avenue	29,293	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	51
67.9	70.8	71.5	73	230	727	Nason - south of Dracaea Avenue	28,489	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	52
51.5	54.4	55.0	2	5	17	Dracaea Avenue - east of Nason	1,206	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	53
60.2	63.1	63.7	13	40	127	Dracaea Avenue - west of Nason	9,112	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	54

Traffic Noise Calculator: FHWA 77-108 **Existing Plus Proj**

Output						Inputs											
dBA at 50 feet			Distance to CNEL Contour														
$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
63.7	66.6	67.2	26	83	262	Lasselle - N of Cottonwood Ave		10,385	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
64.9	67.8	68.4	35	110	348	Lasselle - Cottonwood Ave to Alessandro Boulevard		10,425	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.4	67.3	67.9	31	98	309	Cottonwood Ave - Lasselle to Morrison		9,260	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.2	67.1	67.7	29	93	294	Cottonwood Ave - west of Lasselle Ave		8,978	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.4	67.3	67.9	31	98	309	Morrison Street - North of Cottonwood Ave		9,273	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
63.5	66.3	67.0	25	79	249	Morrison Street - Cottonwood Avenue to Alessandro Blvd		7,464	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.7	68.6	69.2	41	131	415	Cottonwood Ave - Morrison to Nason St		12,583	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
64.6	67.5	68.1	32	102	323	Cottonwood Ave - Lasselle to Morrison		9,863	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
68.0	70.9	71.5	71	225	712	Nason St - North of Eucalyptus		27,900	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.7	72.6	73.3	106	334	1057	Nason St - Eucalyptus to Cottonwood		31,678	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
62.8	65.7	66.3	21	68	215	Eucalyptus - East of Nason St		8,415	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.4	67.3	67.9	31	97	308	Eucalyptus - West of Nason St		12,060	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.1	71.0	71.6	72	229	723	Nason St - Eucalyptus to Cottonwood		28,342	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
60.5	63.4	64.0	13	40	125	Cottonwood - east of Nason (Residential land use)		5,012	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.1	66.9	67.6	29	90	286	Cottonwood Ave - Morrison to Nason St (Residential)		8,576	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.5	71.4	72.0	80	253	799	Nason St - South of Bay		23,960	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.5	71.3	72.0	79	249	789	Nason St - Alessandro to Bay		23,920	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
68.1	71.0	71.7	73	231	732	Nason St - Alessandro to Cactus Ave		21,936	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.9	68.8	69.4	44	138	437	Alessandro Blvd - east of Nason St		13,092	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.8	68.7	69.3	42	134	424	Alessandro Blvd -Morrison to Nason		12,958	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
66.3	69.2	69.8	48	150	476	Moreno Beach - north of Cottonwood Ave		14,258	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.1	70.0	70.6	58	182	575	Moreno Beach - Cottonwood to Alessandro Blvd		13,709	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
59.6	62.5	63.1	10	32	102	Cottonwood Ave - east of Moreno Beach		4,047	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
60.0	62.8	63.5	11	35	111	Cottonwood - west of Moreno Beach (Residential)		3,390	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
67.5	70.4	71.1	64	201	637	Moreno Beach - Cottonwood to Alessandro Blvd		14,874	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.7	70.6	71.2	66	210	663	Moreno Beach - south of Alessandro Blvd		15,799	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
63.9	66.8	67.4	28	88	278	Alessandro - east of Moreno Beach		6,620	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
65.8	68.7	69.3	43	135	426	Alessandro Blvd - east of Nason St		10,144	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
69.6	72.5	73.1	102	324	1023	Nason - project to cottonwood (chuch/residential land uses to e		30,660	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.2	72.1	72.7	93	294	930	Nason - project to Bay (undeveloped)		27,886	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.4	71.3	71.9	79	250	791	Nason - north of Dracaea Avenue		31,008	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	51
68.3	71.2	71.8	79	250	792	Nason - south of Dracaea Avenue		31,049	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	52
51.5	54.4	55.0	2	5	17	Dracaea Avenue - east of Nason		1,206	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	53
60.6	63.5	64.1	14	44	139	Dracaea Avenue - west of Nason		9,956	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	54

Traffic Noise Calculator: FHWA 77-108 **Future No Proj**

Output						Inputs											
dBA at 50 feet			Distance to CNEL Contour														
$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
63.7	66.6	67.2	26	84	265	Lasselle - N of Cottonwood Ave		10,506	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
65.7	68.6	69.2	42	132	416	Lasselle - Cottonwood Ave to Alessandro Boulevard		12,476	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.6	67.5	68.1	33	103	326	Cottonwood Ave - Lasselle to Morrison		9,769	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.8	67.6	68.3	33	106	335	Cottonwood Ave - west of Lasselle Ave		10,238	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.7	67.6	68.2	33	105	332	Morrison Street - North of Cottonwood Ave		9,956	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
63.8	66.6	67.3	27	84	266	Morrison Street - Cottonwood Avenue to Alessandro Blvd		7,973	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.4	68.3	69.0	39	124	393	Cottonwood Ave - Morrison to Nason St		11,913	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
64.6	67.5	68.1	32	102	322	Cottonwood Ave - Lasselle to Morrison		9,849	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
68.5	71.4	72.0	80	253	800	Nason St - North of Eucalyptus		31,357	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
70.2	73.1	73.7	117	369	1168	Nason St - Eucalyptus to Cottonwood		35,002	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
63.2	66.1	66.7	23	74	234	Eucalyptus - East of Nason St		9,166	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.8	67.7	68.3	34	108	341	Eucalyptus - West of Nason St		13,374	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.4	71.3	71.9	78	246	777	Nason St - Eucalyptus to Cottonwood		30,459	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
59.4	62.3	62.9	10	31	98	Cottonwood - east of Nason (Residential land use)		3,926	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
63.4	66.2	66.9	24	77	243	Cottonwood Ave - Morrison to Nason St (Residential)		7,276	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.0	71.8	72.5	88	280	884	Nason St - South of Bay		26,506	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.9	71.8	72.4	87	274	867	Nason St - Alessandro to Bay		26,292	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
69.0	71.9	72.5	90	284	899	Nason St - Alessandro to Cactus Ave		26,948	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
66.3	69.2	69.8	48	153	483	Alessandro Blvd - east of Nason St		14,472	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
66.7	69.6	70.2	53	167	529	Alessandro Blvd -Morrison to Nason		16,174	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
67.0	69.8	70.5	56	176	557	Moreno Beach - north of Cottonwood Ave		16,683	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.9	70.8	71.4	69	218	690	Moreno Beach - Cottonwood to Alessandro Blvd		16,429	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
59.3	62.2	62.8	9	30	95	Cottonwood Ave - east of Moreno Beach		3,766	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
58.9	61.8	62.4	9	27	87	Cottonwood - west of Moreno Beach (Residential)		2,653	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
68.1	70.9	71.6	72	228	719	Moreno Beach - Cottonwood to Alessandro Blvd		16,804	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.3	71.2	71.9	77	242	767	Moreno Beach - south of Alessandro Blvd		18,265	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.7	67.6	68.2	33	105	331	Alessandro - east of Moreno Beach		7,893	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
66.3	69.2	69.8	48	152	479	Alessandro Blvd - east of Nason St		11,417	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
69.0	71.8	72.5	88	280	884	Nason - project to cottonwood (chuch/residential land uses to e		26,506	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.0	71.8	72.5	88	280	884	Nason - project to Bay (undeveloped)		26,506	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.8	71.7	72.3	87	276	871	Nason - north of Dracaea Avenue		34,158	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	51
68.6	71.5	72.1	85	268	849	Nason - south of Dracaea Avenue		33,273	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	52
51.9	54.8	55.4	2	6	18	Dracaea Avenue - east of Nason		1,327	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	53
60.6	63.5	64.1	14	44	139	Dracaea Avenue - west of Nason		10,010	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	54

Traffic Noise Calculator: FHWA 77-108 **Future Plus Proj**

Output						Inputs											
dBA at 50 feet			Distance to CNEL Contour														
$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
64.2	67.0	67.7	29	93	293	Lasselle - N of Cottonwood Ave		11,605	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
65.8	68.7	69.3	42	134	425	Lasselle - Cottonwood Ave to Alessandro Boulevard		12,730	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.2	68.0	68.7	37	117	368	Cottonwood Ave - Lasselle to Morrison		11,042	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.9	67.8	68.4	35	110	349	Cottonwood Ave - west of Lasselle Ave		10,667	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.9	67.8	68.4	35	110	347	Morrison Street - North of Cottonwood Ave		10,385	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
64.0	66.9	67.5	28	89	280	Morrison Street - Cottonwood Avenue to Alessandro Blvd		8,402	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
66.2	69.0	69.7	46	147	464	Cottonwood Ave - Morrison to Nason St		14,057	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
65.1	68.0	68.6	36	115	364	Cottonwood Ave - Lasselle to Morrison		11,136	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
68.6	71.5	72.2	82	260	821	Nason St - North of Eucalyptus		32,201	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
70.4	73.3	73.9	122	387	1225	Nason St - Eucalyptus to Cottonwood		36,704	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
63.4	66.3	66.9	24	77	245	Eucalyptus - East of Nason St		9,595	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
65.0	67.8	68.5	35	111	352	Eucalyptus - West of Nason St		13,802	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.8	71.6	72.3	84	266	842	Nason St - Eucalyptus to Cottonwood		33,019	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
61.0	63.9	64.5	14	45	141	Cottonwood - east of Nason (Residential land use)		5,642	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.7	67.5	68.2	33	104	328	Cottonwood Ave - Morrison to Nason St (Residential)		9,836	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.2	72.1	72.7	94	298	941	Nason St - South of Bay		28,208	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.2	72.0	72.7	92	292	923	Nason St - Alessandro to Bay		27,993	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
69.1	72.0	72.6	91	289	913	Nason St - Alessandro to Cactus Ave		27,377	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
66.6	69.5	70.1	51	162	511	Alessandro Blvd - east of Nason St		15,317	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
66.9	69.7	70.4	54	172	543	Alessandro Blvd -Morrison to Nason		16,603	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
67.1	70.0	70.6	58	183	579	Moreno Beach - north of Cottonwood Ave		17,340	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
67.9	70.8	71.4	70	221	698	Moreno Beach - Cottonwood to Alessandro Blvd		16,630	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
60.0	62.9	63.5	11	35	111	Cottonwood Ave - east of Moreno Beach		4,422	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	3	Hard	50
60.8	63.7	64.4	14	43	136	Cottonwood - west of Moreno Beach (Residential)		4,168	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
68.2	71.1	71.7	75	236	746	Moreno Beach - Cottonwood to Alessandro Blvd		17,434	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
68.4	71.3	71.9	78	245	775	Moreno Beach - south of Alessandro Blvd		18,466	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
64.9	67.8	68.4	35	110	349	Alessandro - east of Moreno Beach		8,322	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
66.5	69.4	70.0	50	158	498	Alessandro Blvd - east of Nason St		11,873	50	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	2	Hard	50
70.2	73.0	73.7	116	368	1165	Nason - project to cottonwood (chuch/residential land uses to e		34,908	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.8	72.7	73.3	107	339	1072	Nason - project to Bay (undeveloped)		32,134	45	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	50
69.0	71.9	72.5	92	289	915	Nason - north of Dracaea Avenue		35,873	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	51
68.9	71.8	72.4	91	289	914	Nason - south of Dracaea Avenue		35,833	40	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	52
51.9	54.8	55.4	2	6	18	Dracaea Avenue - east of Nason		1,327	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	53
61.0	63.8	64.5	15	48	151	Dracaea Avenue - west of Nason		10,854	30	0.0%	97.9%	0.1%	2.0%	69.5%	12.9%	9.6%	4	Hard	54

Appendix G Traffic Impact Analysis

Appendices

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MORENO VALLEY ELEMENTARY SCHOOL

TRAFFIC IMPACT ANALYSIS

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1 EXECUTIVE SUMMARY

This Traffic Impact Analysis (TIA) evaluates the potential traffic impacts of the proposed Moreno Valley Elementary School Project (Project). The Project is located on an 8.97-acre site located east of Nason Street and north of Bay Avenue. Based on the Institute of Transportation Engineers, *Trip* Generation 10th Edition vehicle trip generation rates, the project would generate 1,796 daily trips including 637 AM peak hour and 162 PM peak hour trips.

11 study area intersections listed in Section 2.2 – Study Area and Analysis Scenarios were evaluated during the AM and PM peak hours, which are defined as the hours with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods. AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing Condition
- Existing plus Project Condition
- Opening Year Baseline (corresponding to the project opening year 2025)
- Opening Year plus Project
- Cumulative Baseline
- Cumulative plus Project

Existing plus Project Intersection Analysis Results
All of the intersections would operate with satisfactory LOS in the Existing plus Project Condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue would operate at unsatisfactory LOS F in the AM and PM peak hours. Since the intersection operates at an unsatisfactory LOS in the baseline condition, this is a cumulative impact.

To mitigate the project's impact at Nason Street/Bay Avenue, it is recommended to construct a signal. Nason Street/Bay Avenue would operate at LOS A in the AM and PM peak hour with the mitigation improvement.

Opening Year plus Project Intersection Analysis Results
All study area intersections would operate with a satisfactory LOS in Opening Year plus Project Condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue is projected to operate at unacceptable LOS F in both the AM and PM peak hour. As mentioned in the Existing plus Project section, Nason Street/Bay Avenue is a cumulative impact.

The mitigation discussed in the Existing Plus Project scenario continues to mitigate the impact in the Opening Year Plus Project. Nason Street/Bay Avenue is projected to operate at LOS A in the AM and PM peak hour with the mitigation improvements implemented.

Cumulative plus Project Intersection Analysis Results
All study area intersections would operate with a satisfactory LOS in Opening Year plus Project Condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue is projected to operate at unacceptable LOS F in both the AM and PM peak hour.

The mitigation discussed in the Existing plus Project and Opening Year plus Project continues to mitigate the impact in the Cumulative Plus Project. Nason Street/Bay Avenue is projected to operate at LOS A in the AM and PM peak hour with the mitigation improvements implemented.

Roadway Analysis Results
The two roadway segments analyzed in this report are forecast to operate with satisfactory LOS C or better in all baseline and plus project conditions.

Queue Analysis Results
During the morning drop-off period, an average of 18 vehicles may be queued at any time during the morning drop-off. The project site plan includes space for approximately 20 vehicles in the drop-off area, with space for an additional 13 vehicles on-site. However, the 85th percentile queue is 33 vehicles, which is the total on-site capacity. This means that there could be a short period of time each morning (approximately 3 to 4 minutes) when vehicles may queue on Bay Avenue. The project site plan includes an eastbound queuing/left-turn lane at the project driveway that would extend to the back of the westbound left-turn lane at Bay Avenue. The westbound left-turn lane at Nason Street has not yet been designed, however it is anticipated that the eastbound left-turn lane at the project driveway could provide approximately 275 feet of queuing, or space for an additional 12 vehicles.

For the intersection queue analysis, three intersections would have a significant impact. Nason Street/Cottonwood would have an impact on the north bound left queue in the Cumulative plus Project condition during the AM peak hour, as well as the east bound right queue in all three plus Project conditions during the AM peak hour. Nason Street/Dracaea Avenue would have an impact on the north bound left queue in the Opening Year plus Project and Cumulative plus Project conditions during the AM peak hour. Nason Street/Bay Avenue would not have an impact without the mitigation discussed in the LOS analysis, however, the mitigation at Nason Street/Bay Avenue creates a significant queue impact at the south bound left-turn during the AM peak hour in all three plus project conditions.

To mitigate the queuing impacts at Nason Street/Cottonwood Avenue, Nason Street/Bay Avenue with the signal improvement, and Nason Street/Dracaea Avenue, it is recommended to extend the turn pocket storage length to the extent of the projected queue in the most conservative analysis (Cumulative plus Project AM). The following turn pocket lengths are recommended:

- Nason Street/Cottonwood Avenue - 271 feet of queuing should be provided in the northbound direction and 170 feet of queuing should be provided in the eastbound direction.
- Nason Street/Bay Avenue – In addition to construction of the traffic impact, the southbound left-turn should provide 247 feet of queue storage.
- Nason Street/Dracaea Avenue - extension of the northbound left-turn to provide 353 feet of storage.

2 INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the potential transportation-related impacts of the proposed Moreno Valley Elementary School (Project). This TIA analyzed 950 Students, the expected full capacity of the school.

The scope of work for this TIA was reviewed and approved by the City of Moreno Valley and is provided in Appendix A. The TIA was prepared according to the approved scope of work using methodologies and significance criteria consistent with the requirements of the City of Moreno Valley Traffic Impact Analysis guidelines, General Plan, and applicable provisions of the California Environmental Quality Act (CEQA).

2.1 Project Description

The proposed Project is located on a 8.97-acre site east of Nason Street and north of Bay Avenue. The location of the Project is shown in Figure 1 - Project Location, and the Project site plan is shown in Figure 2 – Project Site Plan. The Project proposes to construct a 77,000-sf two-story U-shaped building with 38 classrooms and 5 portable classrooms for future expansion. The site is currently mostly vacant, with one single family home with two detached structures in the north west corner of the Project site. There is a church to the north and residences to the south of the project site. Two driveways, one right-in right-out only on Nason Street (bus and employee access only) and one ingress only driveway on Bay Avenue, would be constructed as part of the project. Both driveways will be unsignalized.

The proposed school would replace the Moreno Elementary School at 26700 Cottonwood Avenue, which has a current enrollment of 483 students in grades K to 5. Students. The existing Moreno Elementary School would then be used for the Rainbow Springs Pre-school (currently located at 23990 Eucalyptus Street) which has an enrollment of approximately 300 pre-school students.

The Rainbow Springs Pre-School campus would be split to house the District Security Department on the northern portion of the campus and a private school on the southern portion of the campus (with an enrollment capacity of 40 students). The previous Rainbow Springs Pre-School School campus will house approximately 20 District employees.

Note that the proposed project would be transferring existing students at Moreno Elementary School to the project site on Nason Street, many of the vehicular trips in the area already occur. However, since it is unclear how the existing trips are distributed, the full proposed project trip generation will be analyzed. The proposed project will be a single-phase project.

The existing bell schedule for the Moreno Elementary School is 8:00 AM to 2:25 PM (12:05 PM on minimum days). The bell schedule for the proposed project is expected to stay the same. In comparison, the Valley View High School on the south west corner of Nason Street/Euclayptus Avenue starts at 7:18 AM and ends at 3:04 PM (12:46 PM on minimum days).

Figure 1: Project Location

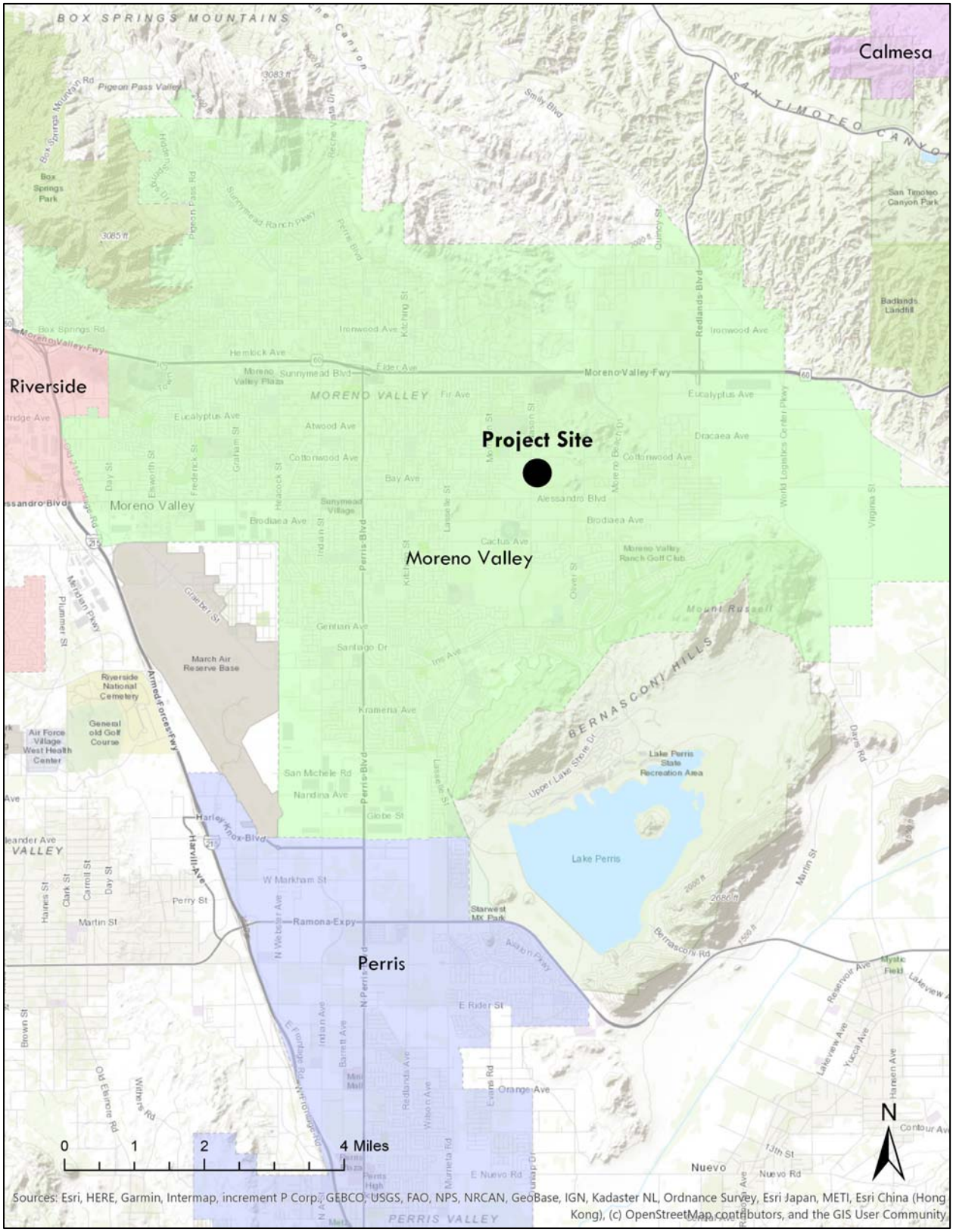
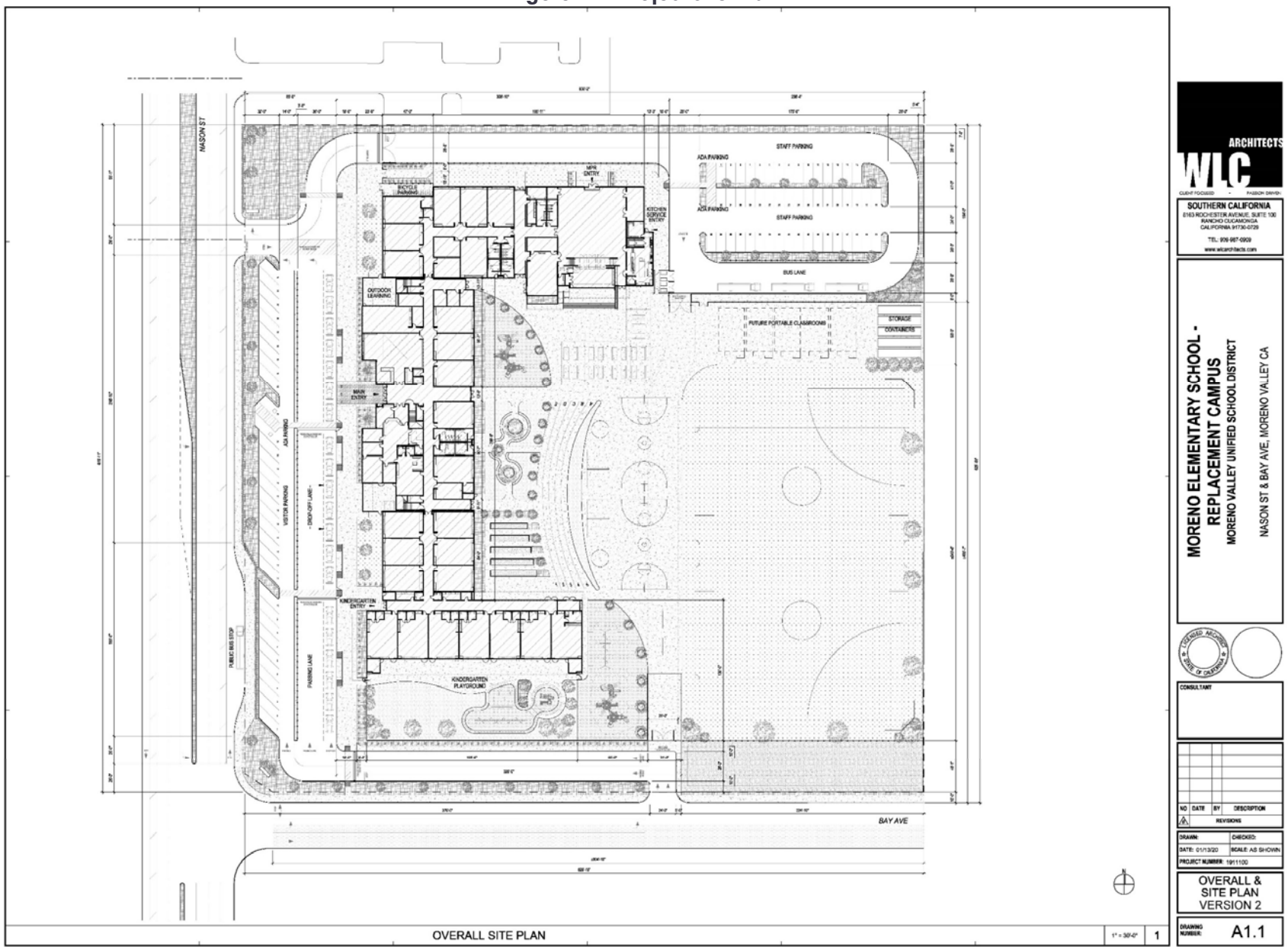


Figure 2: Project Site Plan



2.2 Study Area and Analysis Scenarios

This TIA includes the two project driveways, eight signalized intersections, and one unsignalized intersection where the project has the potential to add 50-trips or more. The following intersections were included in the analysis:

1. Lasselle Street/Cottonwood Avenue
2. Morrison Street/Cottonwood Avenue
3. Nason Street/Eucalyptus Avenue
4. Nason Street/Cottonwood Avenue
5. Nason Street/Bay Avenue
6. Nason Street/Alessandro Boulevard
7. Moreno Beach Drive/Cottonwood Avenue
8. Moreno Beach Drive/Alessandro Boulevard
9. Nason Street/Project Driveway
10. Project Driveway/Bay Avenue
11. Nason Street/Dracaea Avenue

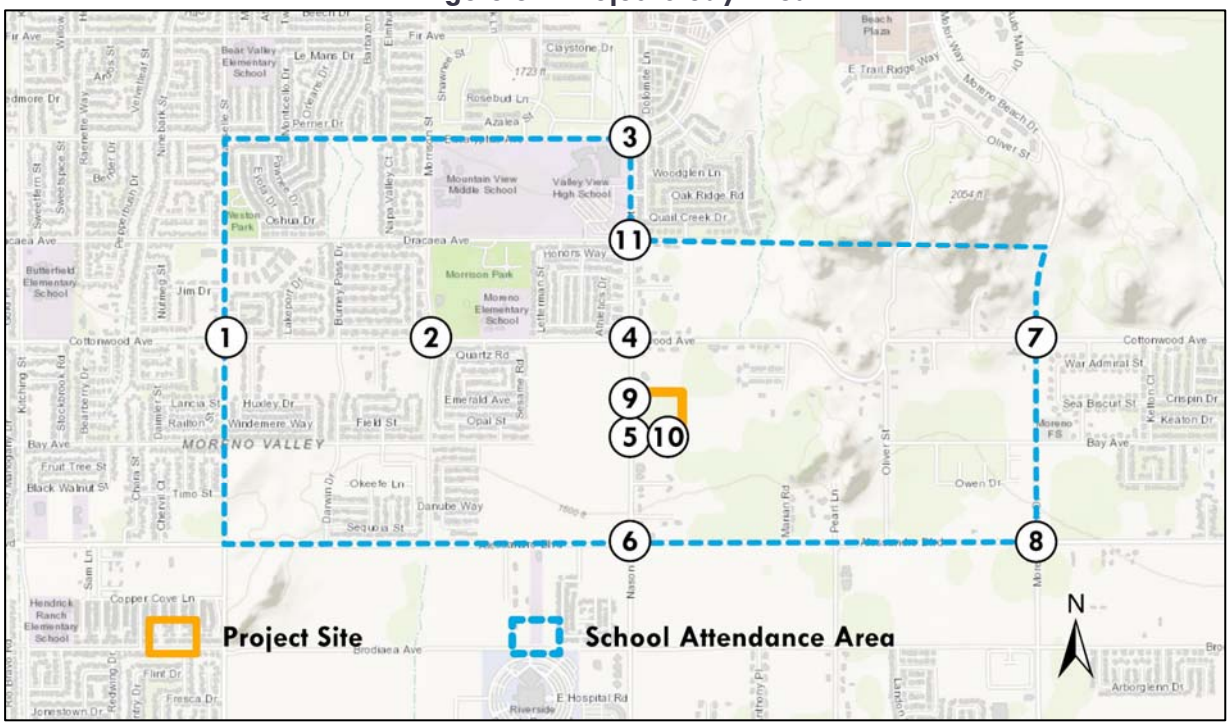
The location of the study area intersections is shown on Figure 3 – Project Study Area.

Study area intersections were evaluated during the AM and PM peak hours, which are defined as the hour with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods. AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing Condition
- Existing plus Project Condition
- Opening Year Baseline (corresponding to the project opening year 2025)
- Opening Year plus Project
- Cumulative Baseline
- Cumulative plus Project

Forecast traffic volumes for the Opening Year conditions were developed by applying a growth rate of two percent per year to the 2019 traffic counts. The Cumulative Baseline volumes were developed by and adding traffic from nearby cumulative development projects (approved and not yet build and those under review) to the Opening Year Baseline Volumes. The growth rate was provided by City of Moreno Valley Engineering staff during the scoping process. Cumulative projects were provided by the City of Moreno Valley Planning Department and are included in the Cumulative analysis.

Figure 3: Project Study Area



2.3 Methodology

Intersection operations are evaluated using Level of Service (LOS), which is a measure of the delay experienced by drivers on a roadway facility. LOS A indicates free-flow traffic conditions and is generally the best operating conditions. LOS F is an extremely congested condition and is the worst operating condition from the driver's perspective. In this report, LOS at signalized and unsignalized intersections is calculated using the Highway Capacity Manual (HCM), 6th Edition methodology.

LOS at signalized intersections is defined in terms of the weighted average control delay for the intersection as a whole. Control delay is a measure of the increase in travel time that is experienced due to traffic signal control and is expressed in terms of average control delay per vehicle (in seconds). Control delay is determined based on the intersection geometry and volume, signal cycle length, phasing and coordination along the arterial corridor. Table 1 shows the relationship between control delay and LOS at a signalized intersection.

Table 1. Relationship between Control Delay and LOS at a Signalized Intersection

LOS	Delay (Seconds per Vehicle)
A	≤ 10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

Unsignalized intersections are categorized as either all-way stop control (AWSC) or two-way stop control (TWSC) LOS at AWSC intersections is determined by the weighted average control delay of the overall intersection. The HCM TWSC intersection methodology calculates LOS based on the delay experienced by drivers on the minor (stop-controlled) approaches to the intersection. For TWSC intersections, LOS is determined for each minor-street movement, as well as the major-street left-turns. The relationship between delay and LOS at Unsignalized intersections is shown in Table 2.

Table 2. Relationship between Delay and LOS an Unsignalized Intersection

LOS	Delay (seconds)
A	0-10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

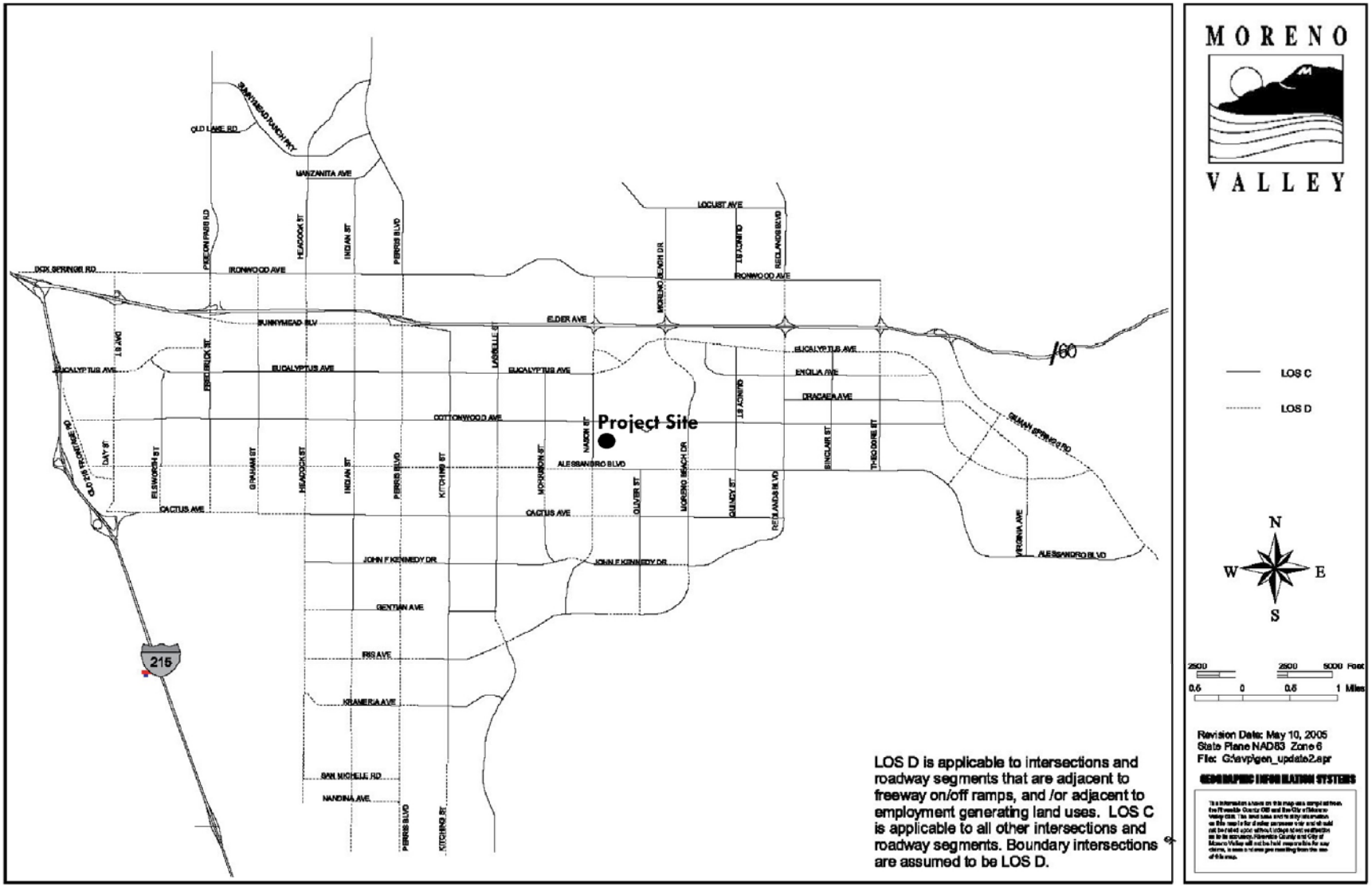
2.4 Significance Criteria

The City of Moreno Valley General Plan Figure 9-2 – LOS Standards (shown in Figure 4), prescribes a LOS standard of LOS C for all intersections in the City, except for intersections adjacent to freeway on/off ramps, intersections adjacent to employment generating land uses, and intersections on the City Boundary, which have a LOS standard of LOS D. Table 3 shows the LOS standard for each study intersection. An impact would occur if the project causes an intersection to deteriorate from acceptable LOS (LOS C/D or better) to an unacceptable LOS (LOS D/E or worse), or adds traffic to an intersection already operating at LOS D or worse in the baseline condition.

Table 3. Study Area Intersection LOS Standard

#	Intersection	LOS
1	Lasselle Street/Cottonwood Avenue	C
2	Morrison Street/Cottonwood Avenue	C
3	Nason Street/Eucalyptus Avenue	D
4	Nason Street/Cottonwood Avenue	C
5	Nason Street/Bay Avenue	C
6	Nason Street/Alessandro Boulevard	D
7	Moreno Beach Drive/Cottonwood Avenue	C
8	Moreno Beach Drive/Alessandro Boulevard	D
9	Nason Street/Project Driveway	C
10	Project Driveway/Bay Avenue	C
11	Nason Street/Dracaea Avenue	C

Figure 4: Moreno Valley LOS Standards



3 BASELINE CONDITIONS

This section discusses the baseline (without project) conditions. Baseline conditions are those conditions that exist within the study area in the existing condition and that are forecast to occur in the future, without the proposed project.

3.1 Existing Transportation System

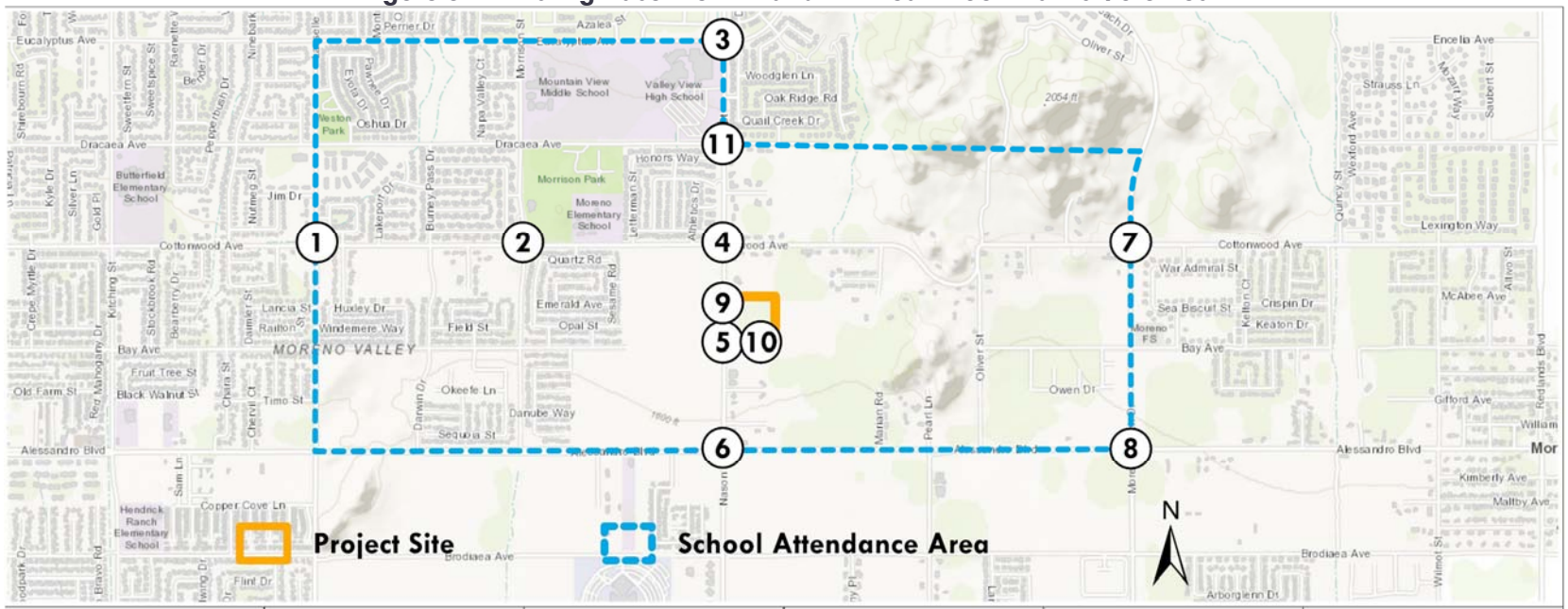
Access to the project site is provided by two driveways, one right-in right-out driveway on Nason Street and one ingress only driveway on Bay Avenue. Nason Street has a speed limit of 40 mph near the project site. There are sidewalks and bike lanes on both sides of Nason Street within the study area. Cottonwood Avenue and Alessandro Boulevard have sidewalks sporadically along both sides of the street. Cottonwood Avenue and Alessandro Boulevard do not have any bike lanes. The project site is served by Riverside Transit Agency bus Route 20, which provides hourly service six days a week, with Sunday service on Memorial Day, Independence Day, Labor Day, Christmas Day, New Years Day.

3.2 Existing Traffic Volumes and Levels of Service

Traffic counts at the existing study area intersections shown in Figure 3 – Project Study Area, were collected on Thursday, May 2 and Tuesday, June 11, 2019. The counts were taken on typical weekdays when schools were in session. Intersection turn movement count sheets are provided in Appendix B. A growth rate of 2 percent was added to the escalate the counts from 2019 to 2020 conditions for the Existing Baseline AM and PM peak hour traffic volumes, shown on Figure 5 – Existing Baseline AM and PM peak Hour Traffic Volumes.

The existing Levels of Service were determined using the HCM methodology, described previously in section 2.3. Table 4 shows the existing AM and PM peak hour levels of service at study intersections. All LOS calculations are provided in Appendix C. As shown in Table 4, all study intersections operate at a satisfactory LOS during the AM and PM peak hours in the existing (2020) condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue operate at LOS D in the AM peak hour and LOS E in the PM peak hours.

Figure 5: Existing Baseline AM and PM Peak Hour Traffic Volumes



1 Lasselle St/Cottonwood Ave	2 Morrison St/Cottonwood Ave	3 Nason St/Eucalyptus Ave	4 Nason St/Cottonwood Ave	5 Nason St/Bay Ave	6 Nason St/Alessandro Blvd
↖ 68/23 ← 241/215 ↙ 23/13 ↑ 43/10 ← 272/133 ↖ 57/21	↖ 73/18 ← 148/71 ↙ 69/18 ↑ 107/16 ← 249/165 ↖ 58/24	↖ 86/77 ← 1048/865 ↙ 9/11 ↑ 21/16 ← 118/137 ↖ 121/165	↖ 132/135 ← 895/766 ↙ 33/27 ↑ 87/31 ← 58/48 ↖ 6/8	← 939/745 ↙ 1/0 ↖ 2/0 2/1	↖ 112/81 ← 765/594 ↙ 58/65 ↑ 133/71 ← 395/230 ↖ 113/17
27/19 ↗ 151/160 → 37/74 ↘	71/26 ↗ 208/162 → 11/9 ↘	204/110 ↗ 185/134 → 207/75 ↘	113/103 ↗ 58/41 → 43/37 ↘	719/902 → 1/1 ↗	67/114 ↗ 186/325 → 94/74 ↘
83/41 ↑ 291/273 → 50/22 ↗	28/7 ↑ 192/100 → 88/27 ↗	68/55 ↑ 651/710 → 142/239 ↗	45/30 ↑ 664/791 → 4/3 ↗		81/79 ↑ 523/697 → 29/96 ↗

7 Moreno Beach Dr/Cottonwood Ave	8 Moreno Beach Dr/Alessandro Blvd	9 Nason St/Project Driveway	10 Project Driveway/Bay Ave	11 Nasson St/Dracaea Ave	
↖ 12/24 ← 402/675 ↙ 24/57 ↑ 45/45 ← 62/34 ↖ 43/36	↖ 87/71 ← 377/593 ↙ 9/12 ↑ 10/16 ← 241/91 ↖ 46/60	← 940/745	← 4/1	↖ 234/112 ← 978/835 ↙ 10/12 ↑ 9/7 ← 23/5 ↖ 28/11	
12/12 ↗ 45/30 → 5/6 ↘	72/94 ↗ 123/238 → 68/77 ↘	721/902 →	2/1 →	130/108 ↗ 9/3 → 81/42 ↘	
4/6 ↑ 520/487 → 34/34 ↗	132/60 ↑ 508/448 → 33/46 ↗			203/46 ↑ 825/998 → 11/16 ↗	

xx/yy = In/Out Distribution Percentage
① = Project Study Area Intersection

Moreno Valley Elementary School

Table 4. Existing AM and PM Peak Hour Levels of Service

Intersection	Signal Control	AM Peak		PM Peak	
		Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Lasselle St/Cottonwood Ave	Signal	22.9	C	20.2	C
2. Morrison St/Cottonwood Ave	Signal	25.5	C	24.4	C
3. Nason St/Eucalyptus Ave	Signal	27.9	C	19.7	B
4. Nason St/Cottonwood Ave	Signal	16.7	B	14.0	B
5. Nason St/Bay Ave	TWSC	33.6	D	35.6	E
6. Nason St/Alessandro Blvd	Signal	29.7	C	23.1	C
7. Moreno Beach Dr/Cottonwood Ave	Signal	19.6	B	16.1	B
8. Moreno Beach Dr/Alessandro Blvd	Signal	33.1	C	35.1	D
9. Nason St/Project Driveway	TWSC	-	-	-	-
10. Project Driveway/Bay Ave	TWSC	-	-	-	-
11. Nasson St/Dracaea Ave	Signal	19.3	B	10.9	B

Unsatisfactory Level of Service

TWSC = Two-Way Stop Controlled

[1] Delay in Seconds

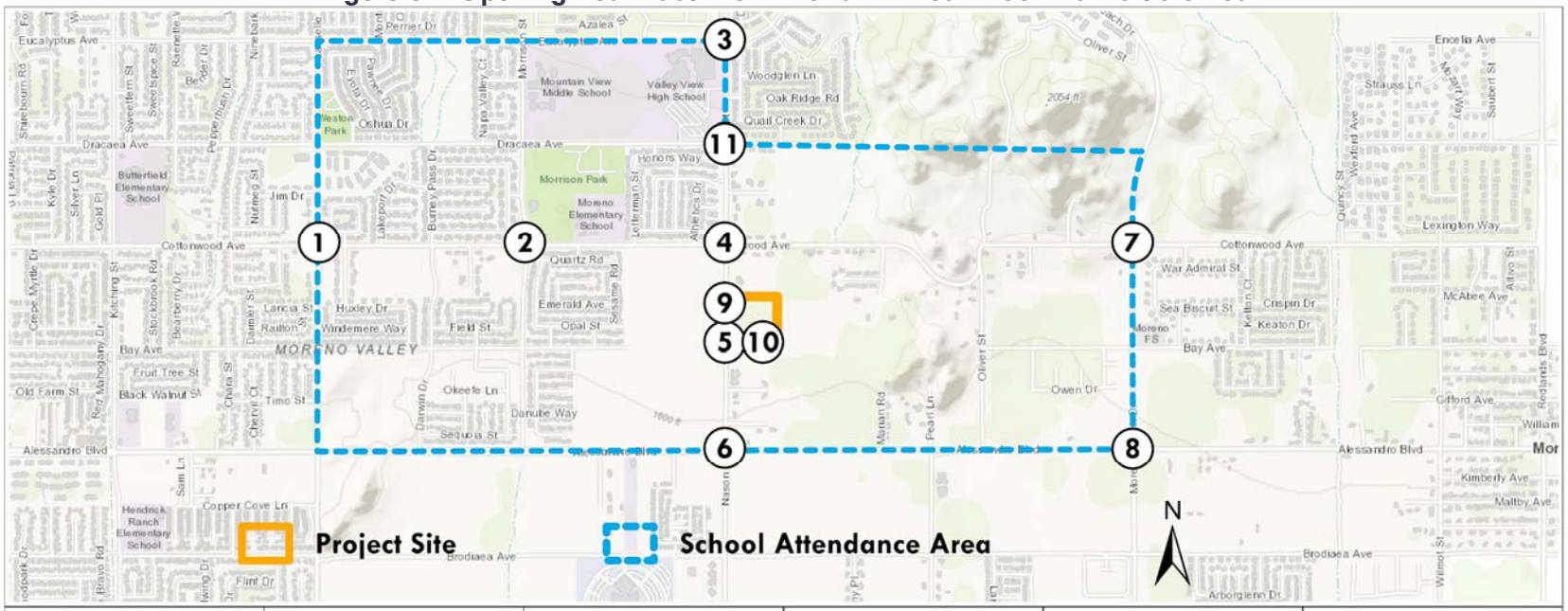
[2] Level of Service

3.3 Opening Year Baseline (2025) Traffic Volumes and LOS

Opening Year Baseline (2025) traffic volumes were developed by applying a growth rate of two percent per year to the existing (2019) traffic volumes. The Opening Year Baseline traffic volumes were illustrated in Figure 6 – Opening Year Baseline AM and PM Peak Hour Traffic Volumes.

The Opening Year Baseline levels of service (LOS) were determined using the HCM methodology, described previously in Section 2.3 - Methodology. Table 5 shows the Opening Year Baseline AM and PM peak hour levels of service at study intersections. As shown in Table 5, all of the intersections are forecast to operate at a satisfactory LOS in the Opening Year Baseline condition except Nason Street/Bay Avenue. Nason Street/Bay Avenue is projected to operate at an unsatisfactory LOS E in both the AM and PM peak hours.

Figure 6: Opening Year Baseline AM and PM Peak Hour Traffic Volumes



1 Lasselle St/Cottonwood Ave	2 Morrison St/Cottonwood Ave	3 Nason St/Eucalyptus Ave	4 Nason St/Cottonwood Ave	5 Nason St/Bay Ave	6 Nason St/Alessandro Blvd
75/25 ↖ 265/237 ↓ 25/14 ↙	80/20 ↖ 163/78 ↓ 76/20 ↙	95/85 ↖ 1153/952 ↓ 10/12 ↙	145/149 ↖ 985/843 ↓ 36/30 ↙	1033/820 ↓ 1/0 ↙	123/89 ↖ 842/653 ↓ 64/72 ↙
47/11 ↖ 299/146 ← 63/23 ↙	118/18 ↖ 274/182 ← 64/26 ↙	23/18 ↖ 130/151 ← 133/182 ↙	96/34 ↖ 64/53 ← 7/9 ↙	2/0 ↖ 2/1 ←	146/78 ↖ 435/253 ← 124/19 ↙
30/21 ↗ 166/176 → 41/81 ↘	78/29 ↗ 229/178 → 12/10 ↘	224/121 ↗ 204/147 → 228/83 ↘	124/113 ↗ 64/45 → 47/41 ↘	791/992 → 1/1 ↗	74/125 ↗ 205/358 → 103/81 ↘
91/45 ↑ 320/300 → 55/24 ↗	31/8 ↑ 211/110 → 97/30 ↗	75/61 ↑ 716/781 → 156/263 ↗	50/33 ↑ 730/870 → 4/3 ↗		89/87 ↑ 575/767 → 32/106 ↗

7 Moreno Beach Dr/Cottonwood Ave	8 Moreno Beach Dr/Alessandro Blvd	9 Nason St/Project Driveway	10 Project Driveway/Bay Ave	11 Nasson St/Dracaea Ave	
13/26 ↖ 442/743 ↓ 26/63 ↙	96/78 ↖ 415/652 ↓ 10/13 ↙	1034/820 ←	← 4/1	257/123 ↖ 1076/919 ↓ 11/13 ↙	
50/50 ↖ 68/37 ← 47/40 ↙	11/18 ↖ 265/100 ← 51/66 ↙			10/8 ↖ 25/6 ← 31/12 ↙	
13/13 ↗ 50/33 → 6/7 ↘	79/103 ↗ 135/262 → 75/85 ↘	793/992 →	2/1 →	143/119 ↗ 10/3 → 89/46 ↘	
4/7 ↑ 572/536 → 37/37 ↗	145/66 ↑ 559/493 → 36/51 ↗			223/51 ↑ 908/1098 → 12/18 ↗	

xx/yy = In/Out Distribution Percentage
① = Project Study Area Intersection

Moreno Valley Elementary School

Table 5. Opening Year AM and PM Peak Hour Levels of Service

Intersection	Signal Control	AM Peak		PM Peak	
		Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Lasselle St/Cottonwood Ave	Signal	23.4	C	20.4	C
2. Morrison St/Cottonwood Ave	Signal	25.8	C	24.2	C
3. Nason St/Eucalyptus Ave	Signal	33.1	C	20.6	C
4. Nason St/Cottonwood Ave	Signal	18.0	B	15.0	B
5. Nason St/Bay Ave	TWSC	40.6	E	43.4	E
6. Nason St/Alessandro Blvd	Signal	31.6	C	23.9	C
7. Moreno Beach Dr/Cottonwood Ave	Signal	21.9	C	17.7	B
8. Moreno Beach Dr/Alessandro Blvd	Signal	36.4	D	38.5	D
9. Nason St/Project Driveway	TWSC	-	-	-	-
10. Project Driveway/Bay Ave	TWSC	-	-	-	-
11. Nasson St/Dracaea Ave	Signal	23.3	C	12.0	B

Unsatisfactory Level of Service

TWSC = Two-Way Stop Controlled

[1] Delay in Seconds

[2] Level of Service

3.4 Cumulative Traffic Volumes and LOS

Cumulative Baseline (2025) traffic volumes were developed by applying a growth rate of two percent per year to the existing (2019) traffic volumes and adding traffic generated by other approved and pending development projects. A total of 17 projects in the City of Moreno Valley were included in the Cumulative Baseline. The location of the cumulative projects are shown in Figure 7 – Location of Cumulative Projects. The project trip generation for each cumulative project was calculated using trip rates from the Institute of Transportation Engineers, *Trip* Generation, 10th Edition. Table 6 shows the trip generation for each cumulative project.

The traffic volumes generated by the cumulative projects were distributed to the study area intersections and are illustrated in Figure 8 – Cumulative Projects Trip Assignment. As noted in Section 2.2 – Study Area and Analysis Scenarios, forecast traffic volumes for the Cumulative Baseline condition were developed by applying a growth rate of two percent per year to the 2019 traffic counts and adding traffic from cumulative projects. The Cumulative Baseline traffic volumes were illustrated in Figure 9 – Cumulative Baseline AM and PM Peak Hour Traffic Volumes.

The Cumulative Baseline levels of service (LOS) were determined using the HCM methodology, described previously in Section 2.3 - Methodology. Table 7 shows the Cumulative Baseline AM and PM peak hour levels of service at study intersections. As shown in Table 7, all of the intersections are forecast to operate at a satisfactory LOS in the Cumulative Baseline condition except Nason Street/Bay Avenue. Nason Street/Bay Avenue is projected to operate at an unsatisfactory LOS E in the AM peak hour and LOS F in the PM peak hour.

Figure 7: Location of Cumulative Projects

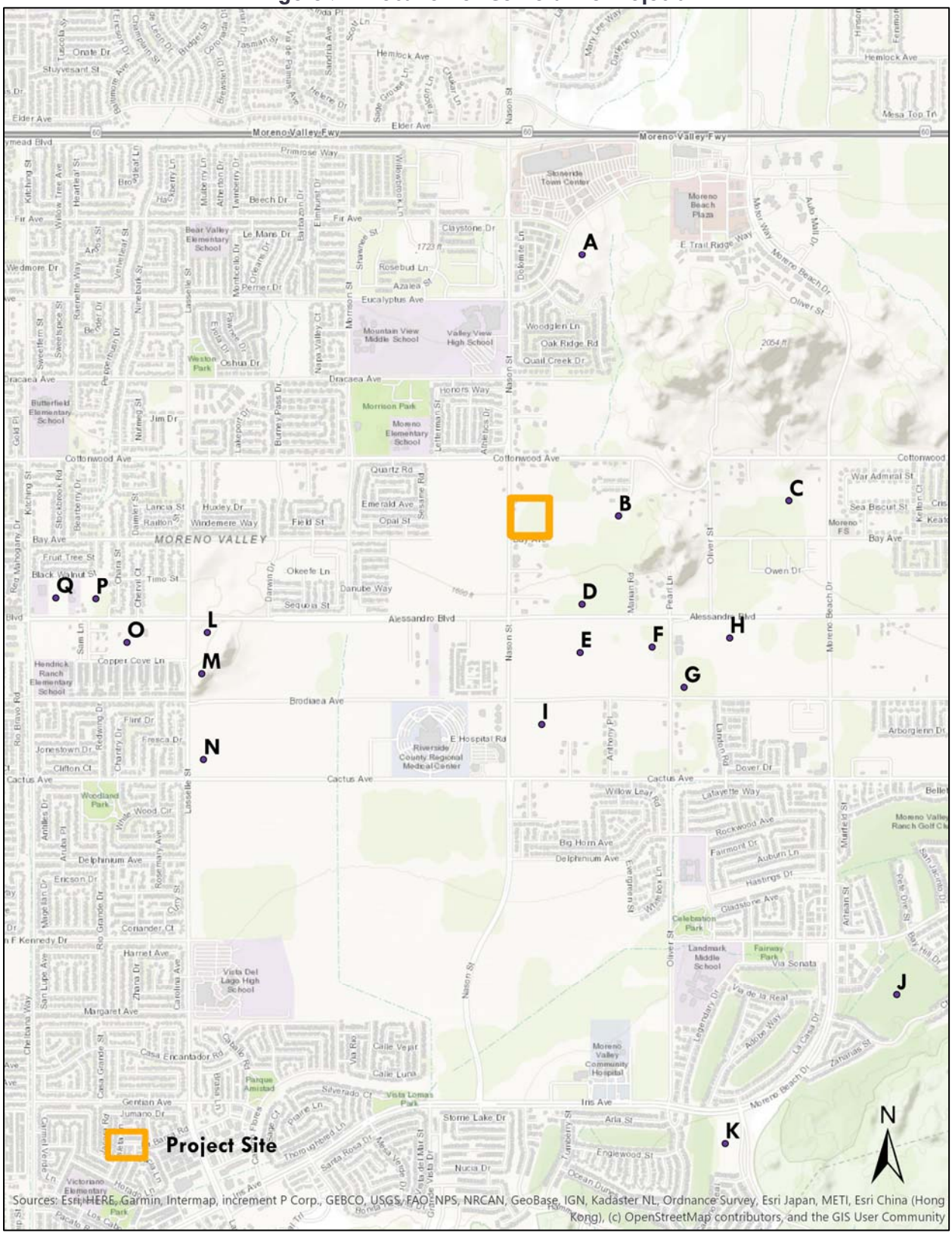


Table 6. Cumulative Projects Trip Generation

Land Use	Units		Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Trip Rates									
Single Family Detached Housing[1]		DU	9.440	0.185	0.555	0.740	0.624	0.366	0.990
Medical-Dental Office Builidng[2]		TSF	34.800	2.168	0.612	2.780	0.969	2.491	3.460
Multifamily Housing (Low-Rise)[3]		DU	7.320	0.106	0.354	0.460	0.353	0.207	0.560
Cumulative Project Trip Generation									
A: Beazer Homes Single Family	275	DU	2596	51	153	204	172	101	272
B: Winchester Associates Single Family	52	DU	491	10	29	38	32	19	51
C: Dev West Engineering	80	DU	755	15	44	59	50	29	79
D: Winchester Associates	54	DU	510	10	30	40	34	20	53
E: Gabel, Cook and Associates Single Family	107	DU	1010	20	59	79	67	39	106
F: Winchester Associates Single Family	63	DU	595	12	35	47	39	23	62
G: Joe Anderson Single Family	32	DU	302	6	18	24	20	12	32
H: Mike McKnight Planning	96	DU	906	18	53	71	60	35	95
I: Moreno Valley Medical Plaza	217	TSF	7552	471	133	603	210	541	751
J: ROCIII CA Belago Multi Family	417	DU	3052	44	148	192	147	86	234
K: Granite Capital Multi Family	135	DU	988	14	48	62	48	28	76
L: Boulder Ridge Multi Family	141	DU	1032	15	50	65	50	29	79
M: Rocas Grandes Multi Family	426	DU	3118	45	151	196	150	88	239
N: MV Bella Vista GP Multi Family	220	DU	1610	23	78	101	78	46	123
O: Perris Pacific Company Multi Family	49	DU	359	5	17	23	17	10	27
P: Creative Design Associates Multi Family	58	DU	425	6	21	27	20	12	32
Q: Creative Design Associates Multi Family	39	DU	285	4	14	18	14	8	22
Total Trip Generation			**25587**	**768**	**1080**	**1848**	**1208**	**1126**	**2334**

TSF = Thousand Square Feet

DU = Dwelling Units

1 Trip rates from the Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017. Land Use Code 210 - Single-Family Detached Housing.

2 Trip rates from the Institute of Transportation Engineers, *Trip Generation, 10th Edition,* 2017. Land Use Code 720 - Medical-Dental Office Building.

3 Trip rates from the Institute of Transportation Engineers, *Trip Generation, 10th Edition,* 2017. Land Use Code 220 - Multifamily Housing (Low-Rise).

Figure 8: Cumulative Projects Trip Assignment

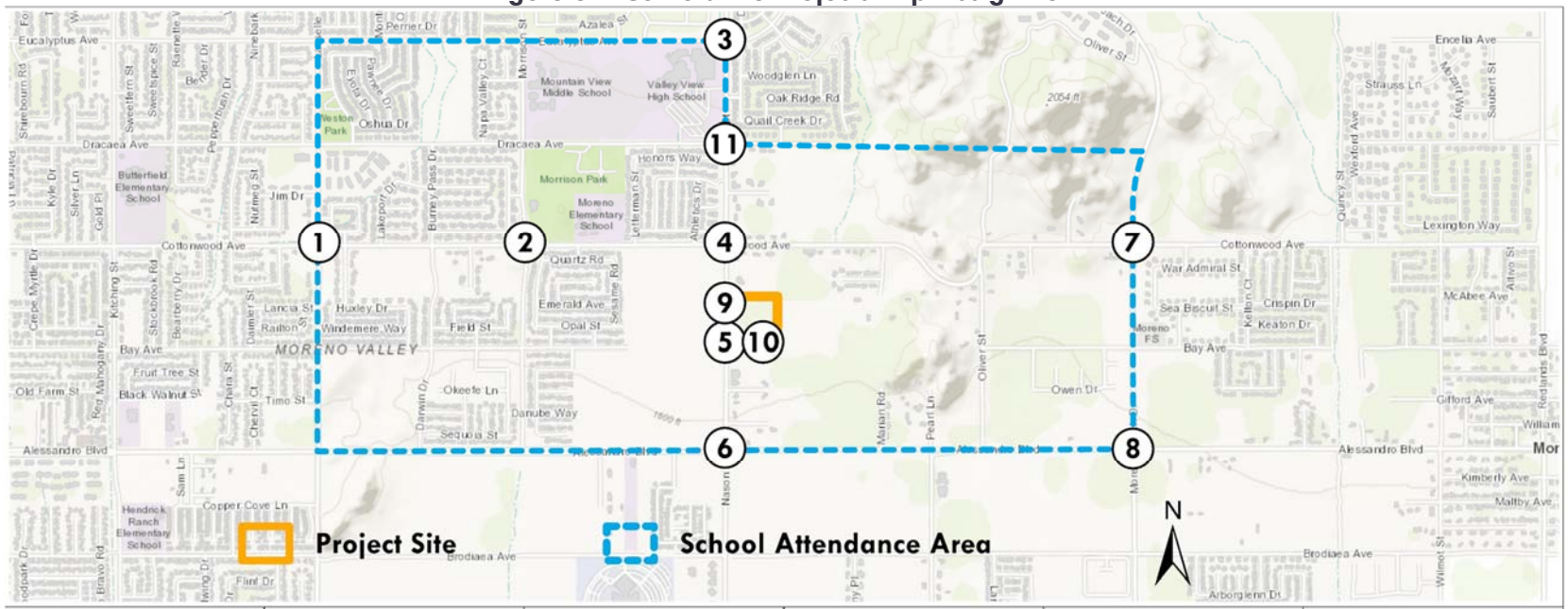
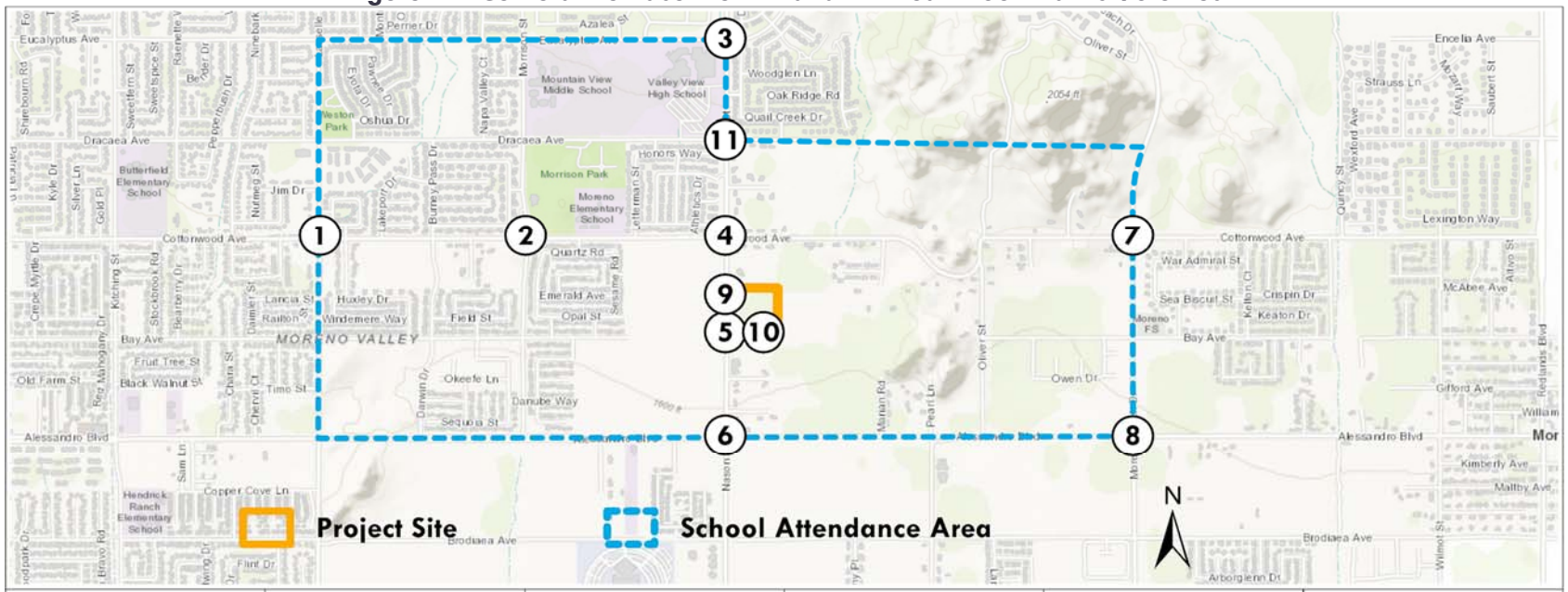


Figure 9: Cumulative Baseline AM and PM Peak Hour Traffic Volumes



75/25 ↙ 270/253 ↓ 25/14 ↘ 30/21 ↖ 190/187 ← 65/92 ↙ 98/72 ↑ 337/310 → 88/43 ↗ ↖ 47/11 ← 306/173 ↙ 73/56 1 Lasselle St/Cottonwood Ave	80/20 ↙ 167/93 ↓ 76/20 ↘ 78/29 ↖ 253/189 ← 12/10 ↙ 31/8 ↑ 224/119 → 97/30 ↗ ↖ 118/18 ← 281/209 ↙ 64/26 2 Morrison St/Cottonwood Ave	95/85 ↙ 1197/1030 ↓ 10/12 ↘ 224/121 ↖ 207/156 ← 252/94 ↙ 82/88 ↑ 783/848 → 161/273 ↗ ↖ 31/23 ← 138/156 ↙ 137/197 3 Nason St/Eucalyptus Ave	155/163 ↙ 1047/914 ↓ 42/50 ↘ 127/122 ↖ 65/50 ← 71/52 ↙ 57/60 ↑ 788/954 → 4/3 ↗ ↖ 114/46 ← 68/56 ↙ 7/9 4 Nason St/Cottonwood Ave	1119/902 ↓ 1/0 ↘ 856/1103 → 1/1 ↗ ↖ 2/0 ↙ 2/1 5 Nason St/Bay Ave	123/89 ↙ 920/710 ↓ 71/97 ↘ 85/132 ↖ 252/425 ← 196/127 ↙ 109/168 ↑ 617/863 → 43/148 ↗ ↖ 146/78 ← 442/257 ↙ 126/20 6 Nason St/Alessandro Blvd
20/51 ↙ 466/825 ↓ 26/63 ↘ 35/28 ↖ 50/33 ← 10/19 ↙ 15/14 ↑ 648/584 → 39/38 ↗ ↖ 50/50 ← 68/37 ↙ 48/42 7 Moreno Beach Dr/Cottonwood Ave	116/122 ↙ 428/684 ↓ 14/16 ↘ 82/113 ↖ 135/262 ← 75/85 ↙ 149/79 ↑ 590/515 → 36/51 ↗ ↖ 24/30 ← 295/140 ↙ 85/88 8 Moreno Beach Dr/Alessandro Blvd	1120/902 ↓ 858/1103 → 9 Nason St/Project Driveway	← 4/1 2/1 → 10 Project Driveway/Bay Ave	257/123 ↙ 1144/1011 ↓ 11/13 ↘ 143/119 ↖ 10/3 ← 89/46 ↙ 223/51 ↑ 984/1193 → 12/18 ↗ ↖ 10/8 ← 25/6 ↙ 31/12 11 Nasson St/Dracaea Ave	

xx/yy = In/Out Distribution Percentage
① = Project Study Area Intersection

Moreno Valley Elementary School

Table 7. Cumulative AM and PM Peak Hour Levels of Service

Intersection	Signal Control	AM Peak		PM Peak	
		Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Lasselle St/Cottonwood Ave	Signal	23.9	C	22.0	C
2. Morrison St/Cottonwood Ave	Signal	25.7	C	24.0	C
3. Nason St/Eucalyptus Ave	Signal	35.7	D	21.8	C
4. Nason St/Cottonwood Ave	Signal	19.8	B	17.1	B
5. Nason St/Bay Ave	TWSC	48.8	E	55.5	F
6. Nason St/Alessandro Blvd	Signal	32.7	C	27.0	C
7. Moreno Beach Dr/Cottonwood Ave	Signal	25.8	C	20.8	C
8. Moreno Beach Dr/Alessandro Blvd	Signal	40.1	D	45.3	D
9. Nason St/Project Driveway	TWSC	-	-	-	-
10. Project Driveway/Bay Ave	TWSC	-	-	-	-
11. Nasson St/Dracaea Ave	Signal	25.3	C	12.2	B

Unsatisfactory Level of Service

TWSC = Two-Way Stop Controlled

[1] Delay in Seconds

[2] Level of Service

4 PROPOSED PROJECT

4.1 Project Description and Project Access

The proposed Project is located on an 8.97-acre site east of Nason Street and north of Bay Avenue. The location of the Project is shown in Figure 1 - Project Location, and the Project site plan is shown in Figure 2 – Project Site Plan. As described in Section 2.1 – Project Description, the Project proposes to construct a 77,000-sf two-story U-shaped building with 38 classrooms and 5 portable classrooms for future expansion. Access to the project site will be provided via two unsignalized driveways, one right-in right-out only driveway on Nason Street (bus and employee access only), and one ingress only driveway on Bay Avenue.

The existing bell schedule for the Moreno Elementary School is 8:00 AM to 2:25 PM (12:05 PM on minimum days). The bell schedule for the proposed project is expected to stay the same. In comparison, the Valley View High School on the south west corner of Nason Street/Euclayptus Avenue starts at 7:18 AM and ends at 3:04 PM (12:46 PM on minimum days).

In the morning, parents exiting the project site will be required to yield to inbound vehicles entering the site from Nason Street. The District has stated that school staff would be present at the drop-off area during peak drop-off and pick-up periods to direct traffic. Additionally, signage could be provided indicating that vehicles exiting the drop-off area must yield to inbound vehicles.

4.2 Project Trip Generation

Vehicle trips were generated for the project using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation* (10th Edition, 2017). The project trip generation is shown in Table 8. The project would generate 1,796 daily trips, including 637 AM peak hour trips and 162 PM peak hour trips. It should be noted that only the peak commute hours are evaluated in this report, consistent with the approved scoping agreement provided in Appendix A. The elementary school is currently located at Morrison Street and Cottonwood Avenue and would be moved to the project site. In the existing condition, there are project trips traveling throughout the project study area. However, as shown below the new elementary school would generate more trips and change the flow of traffic in the area. Therefore, the entire trip generation was analyzed.

Table 8. Project Trip Generation

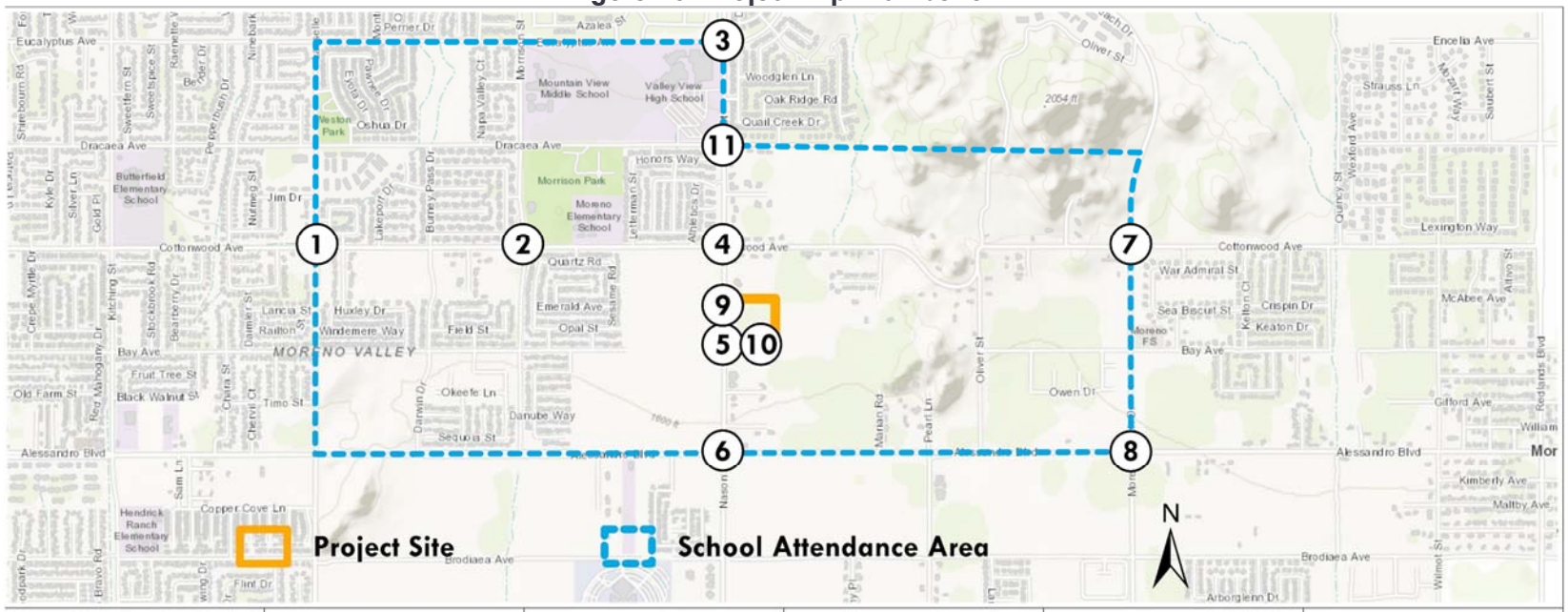
			AM Peak Hour			PM Peak Hour		
Land Use	**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates								
Elementary School[1]	Students	1.890	0.362	0.308	0.670	0.082	0.088	0.170
Cumulative Project Trip Generation								
Proposed Elementary School	950 Students	1796	344	293	637	78	84	162
Existing Elementary School	483 Students	913	175	149	324	39	43	82

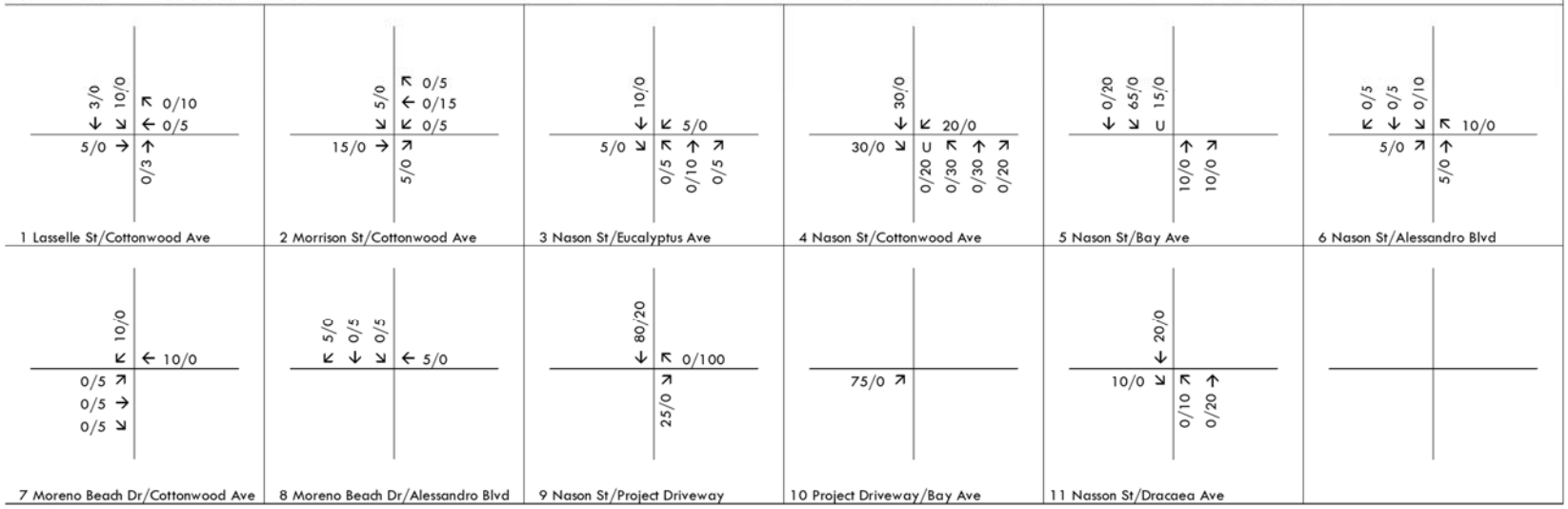
1 Trip rates from the Institute of Transportation Engineers, Trip Generation, 10th Edition, 2017. Land Use Code 520 - Elementary School.

4.3 Project Trips

Project trips were distributed to the study area intersections based on the location of the project and logical routes of travel to and from the site. It is expected that the bus and employee trips will account for approximately 25% of the trips and would use the Nason Street driveway, while the rest of the project trips will use the Bay Avenue driveway. Project trips were assigned to the study area intersections by multiplying the net project trip generation by the trip distribution percent at each location. The project trip distribution and assignment are shown in Figure 10 – Project Trip Distribution and Figure 11 – Project Trip Assignment.

Figure 10: Project Trip Distribution

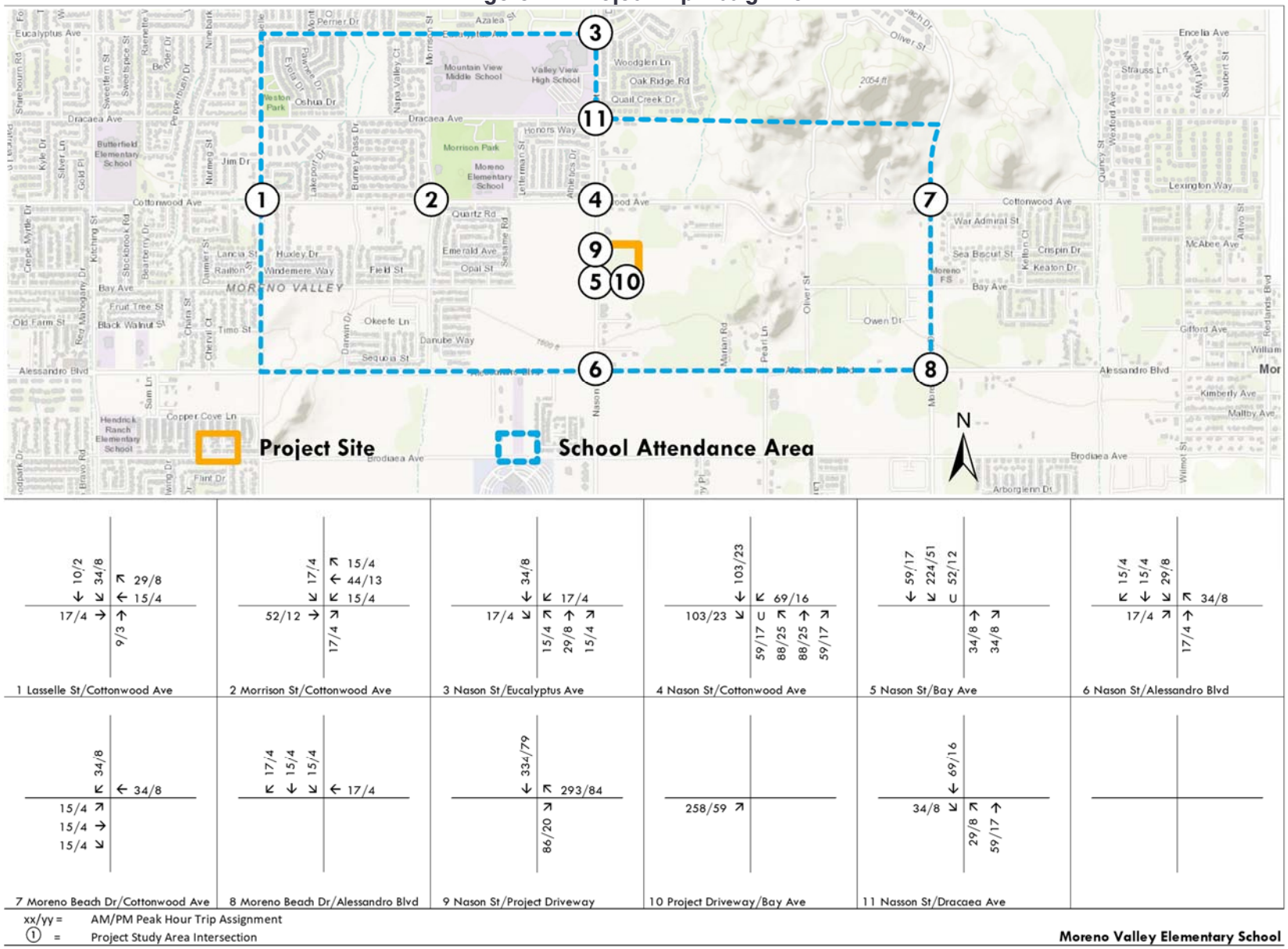




xx/yy = In/Out Distribution Percentage
① = Project Study Area Intersection

Moreno Valley Elementary School

Figure 11: Project Trip Assignment



5 PROJECT IMPACTS

5.1 Existing Plus Project Traffic Volumes and Intersection Operations

Existing plus Project traffic volumes were determined by adding the project trips to Existing Without Project traffic volumes. Figure 12 shows the Existing plus Project weekday AM and PM peak hour traffic volumes at the study intersections.

An intersection operations analysis was conducted for the study area to evaluate the Existing plus Project weekday AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described previously in Section 2.3 - Methodology. Table 9 provides a comparison between the Existing Without and With Project conditions.

As shown in Table 9, all of the intersections would operate with a satisfactory LOS in the Existing plus Project Condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue operate at unsatisfactory LOS F in the AM and PM peak hour.

To mitigate the project's impact at Nason Street/Bay Avenue, it is recommended that a traffic signal be constructed. As shown in Table 9, Nason Street/Bay Avenue would operate at LOS A in the AM and PM peak hour with the mitigation improvement.

Table 9. Existing and Existing plus Project Peak Hour Levels of Service

Intersection	Signal Control	Existing				Existing plus Project				Impact?	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	AM	PM
1. Lasselle St/Cottonwood Ave	Signal	22.9	C	20.2	C	23.9	C	20.5	C	No	No
2. Morrison St/Cottonwood Ave	Signal	25.5	C	24.4	C	26.0	C	24.5	C	No	No
3. Nason St/Eucalyptus Ave	Signal	27.9	C	19.7	B	28.9	C	19.9	B	No	No
4. Nason St/Cottonwood Ave	Signal	16.7	B	14.0	B	22.7	C	15.4	B	No	No
5. Nason St/Bay Ave	TWSC	33.6	D	35.6	E	218.8	F	51.1	F	Yes	Yes
6. Nason St/Alessandro Blvd	Signal	29.7	C	23.1	C	30.5	C	23.3	C	No	No
7. Moreno Beach Dr/Cottonwood Ave	Signal	19.6	B	16.1	B	23.4	C	17.0	B	No	No
8. Moreno Beach Dr/Alessandro Blvd	Signal	33.1	C	35.1	D	34.8	C	35.3	D	No	No
9. Nason St/Project Driveway	TWSC	-	-	-	-	18.6	C	13.8	B	No	No
10. Project Driveway/Bay Ave	TWSC	-	-	-	-	8.3	A	7.6	A	No	No
11. Nasson St/Dracaea Ave	Signal	19.3	B	10.9	B	22.3	C	11.2	B	No	No
Intersection		**Existing**				**Existing plus Project MIT**				**Impact?**	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	AM	PM
5. Nason St/Bay Ave	Signal	33.6	D	35.6	E	8.8	A	3.9	A	No	No

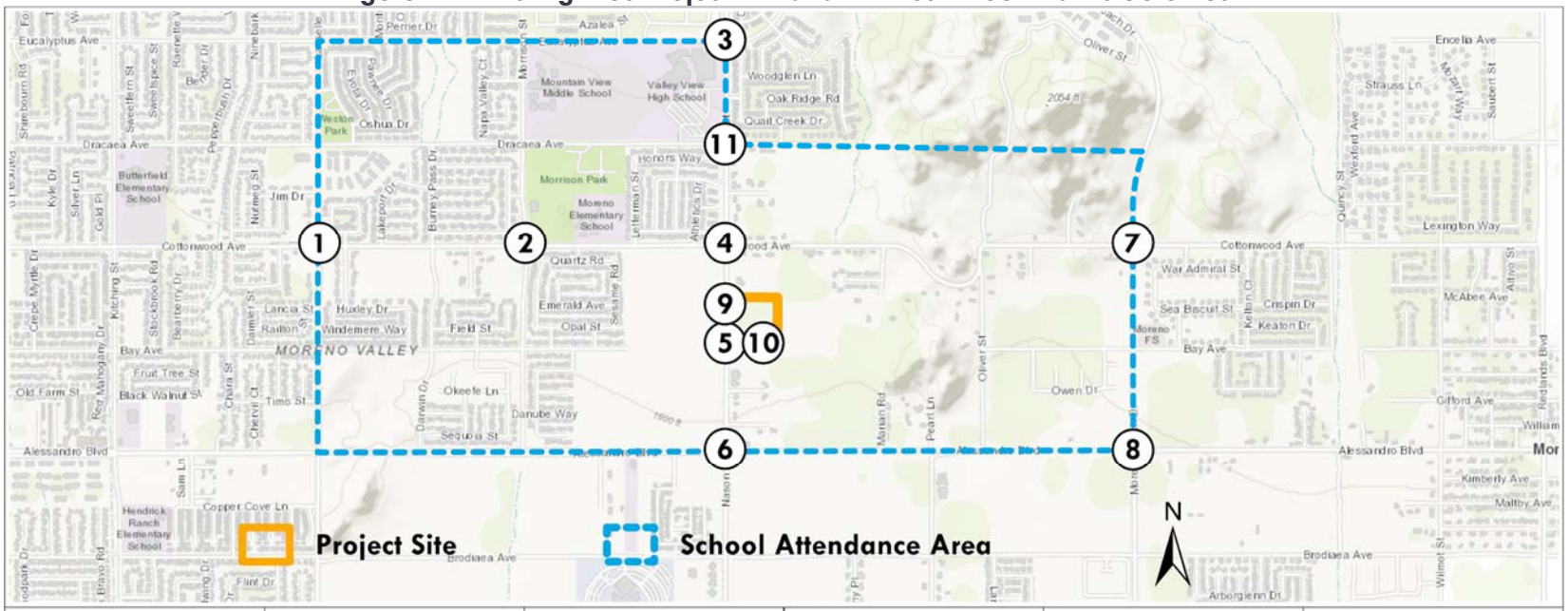
Unsatisfactory Level of Service

TWSC = Two-Way Stop Controlled

[1] Delay in Seconds

[2] Level of Service

Figure 12: Existing Plus Project AM and PM Peak Hour Traffic Volumes



1 Lasselle St/Cottonwood Ave	2 Morrison St/Cottonwood Ave	3 Nason St/Eucalyptus Ave	4 Nason St/Cottonwood Ave	5 Nason St/Bay Ave	6 Nason St/Alessandro Blvd
↖ 68/23 ← 251/217 ↙ 57/21	↖ 73/18 ← 148/71 ↙ 86/22	↖ 86/77 ← 1082/873 ↙ 9/11	↖ 132/135 ← 998/789 ↙ 33/27	← 998/762 ↙ 225/51 ∪ 52/12	↖ 127/85 ← 780/598 ↙ 87/73
↗ 72/18 ← 287/137 ↖ 57/21	↗ 122/20 ← 293/178 ↖ 73/28	↗ 21/16 ← 118/137 ↖ 138/169	↗ 87/31 ← 58/48 ↖ 75/24	↖ 2/0 ↖ 2/1	↗ 167/79 ← 395/230 ↖ 113/17
27/19 ↗	71/26 ↗	204/110 ↗	113/103 ↗	753/910 →	84/118 ↗
168/164 →	260/174 →	185/134 →	58/41 →	35/9 ↘	186/325 →
37/74 ↘	11/9 ↘	224/79 ↘	146/60 ↘		94/74 ↘
83/41 ↗	28/7 ↗	83/59 ↗	59/17 ∪		81/79 ↗
300/276 →	192/100 →	680/718 →	133/55 ↗		540/701 →
50/22 ↘	105/31 ↘	157/243 ↘	752/816 →		29/96 ↘
			63/20 ↘		

7 Moreno Beach Dr/Cottonwood Ave	8 Moreno Beach Dr/Alessandro Blvd	9 Nason St/Project Driveway	10 Project Driveway/Bay Ave	11 Nasson St/Dracaea Ave	
↖ 46/32 ← 402/675 ↙ 24/57	↖ 104/75 ← 392/597 ↙ 24/16	← 1274/824		↖ 234/112 ← 1047/851 ↙ 10/12	
↗ 45/45 ← 96/42 ↖ 43/36	↗ 10/16 ← 258/95 ↖ 46/60	↗ 293/84	← 4/1	↗ 9/7 ← 23/5 ↖ 28/11	
27/16 ↗	72/94 ↗	721/902 →	258/59 ↗	130/108 ↗	
60/34 →	123/238 →	86/20 ↘	2/1 →	9/3 →	
20/10 ↘	68/77 ↘			115/50 ↘	
4/6 ↗	132/60 ↗			232/54 ↗	
520/487 →	508/448 →			884/1015 →	
34/34 ↘	33/46 ↘			11/16 ↘	

xx/yy = AM/PM Peak Hour Trip Assignment
① = Project Study Area Intersection

Moreno Valley Elementary School

5.2 Opening Year (2025) Plus Project Traffic Volumes and Intersection Operations

Opening Year plus Project traffic volumes were determined by adding the project trips to the Opening Year Baseline traffic volumes. Figure 13 shows the Opening Year with-project weekday AM and PM peak hour traffic volumes at the study intersections.

An intersection operations analysis was conducted for the study area to evaluate the Opening Year plus Project weekday AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described previously. Table 10 provides a comparison between the Opening Year without and with-project conditions.

As shown in Table 10, all of intersections would operate with a satisfactory LOS in Opening Year plus Project Condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue is projected to operate at unacceptable LOS F in both the AM and PM peak hour.

The mitigation discussed in the Existing Plus Project scenario continues to mitigate the impact in the Opening Year Plus Project condition. As shown in Table 10, Nason Street/Bay Avenue is projected to operate at LOS A in the AM and PM peak hour with the mitigation improvements implemented.

Table 10. Opening Year and Opening Year plus Project Peak Hour Levels of Service

Intersection	Signal Control	Opening Year				Opening Year plus Project				Impact?	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	AM	PM
1. Lasselle St/Cottonwood Ave	Signal	23.4	C	20.4	C	24.5	C	20.8	C	No	No
2. Morrison St/Cottonwood Ave	Signal	25.8	C	24.2	C	26.8	C	24.3	C	No	No
3. Nason St/Eucalyptus Ave	Signal	33.1	C	20.6	C	34.6	C	20.8	C	No	No
4. Nason St/Cottonwood Ave	Signal	18.0	B	15.0	B	24.5	C	16.4	B	No	No
5. Nason St/Bay Ave	TWSC	40.6	E	43.4	E	312.7	F	64.3	F	Yes	Yes
6. Nason St/Alessandro Blvd	Signal	31.6	C	23.9	C	32.4	C	24.1	C	No	No
7. Moreno Beach Dr/Cottonwood Ave	Signal	21.9	C	17.7	B	26.8	C	18.7	B	No	No
8. Moreno Beach Dr/Alessandro Blvd	Signal	36.4	D	38.5	D	38.9	D	38.8	D	No	No
9. Nason St/Project Driveway	TWSC	-	-	-	-	20.7	C	14.7	B	No	No
10. Project Driveway/Bay Ave	TWSC	-	-	-	-	8.3	A	7.6	A	No	No
11. Nasson St/Dracaea Ave	Signal	23.3	C	12.0	B	27.9	C	12.3	B	No	No
Intersection		Opening Year				Opening Year plus Project MIT				Impact?	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	AM	PM
5. Nason St/Bay Ave	TWSC	40.6	E	43.4	E	8.8	A	4.4	A	No	No

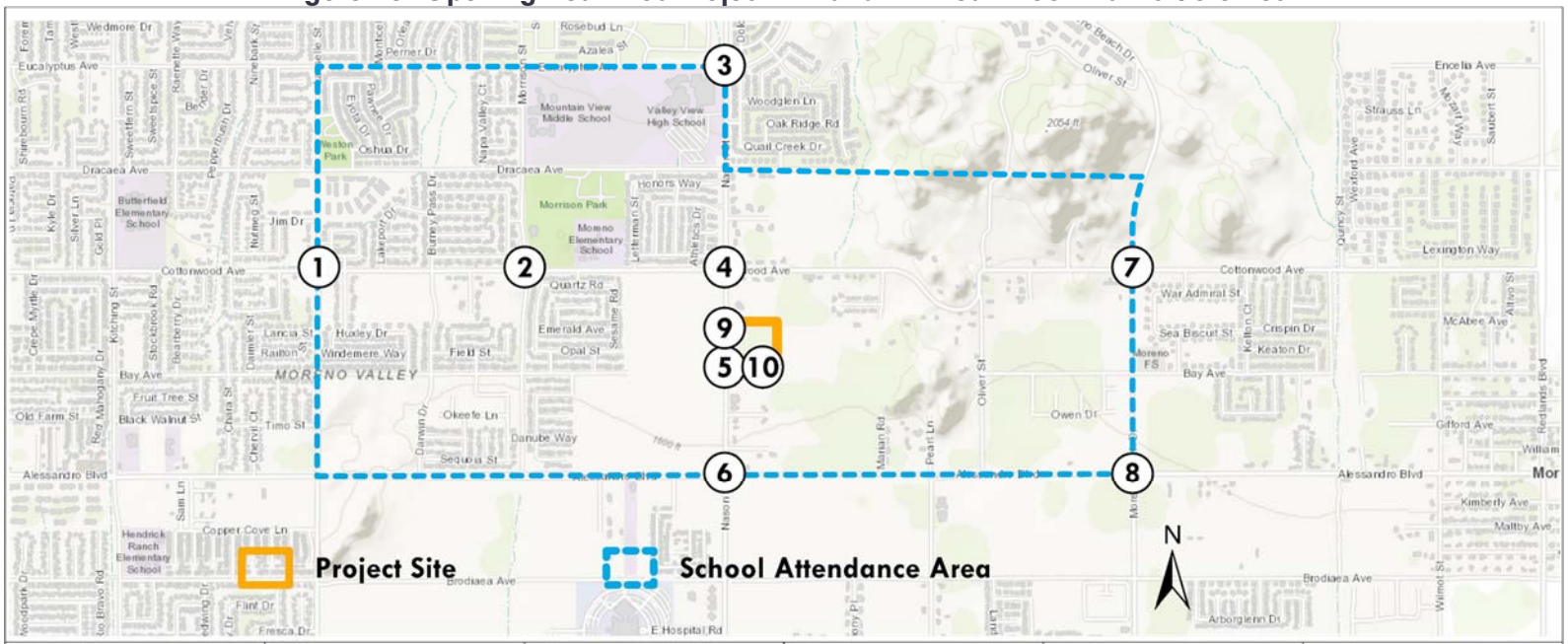
Unsatisfactory Level of Service

TWSC = Two-Way Stop Controlled

[1] Delay in Seconds

[2] Level of Service

Figure 13: Opening Year Plus Project AM and PM Peak Hour Traffic Volumes



xx/yy = AM/PM Peak Hour Trip Assignment
① = Project Study Area Intersection

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5.3 Cumulative Plus Project Traffic Volumes and Intersection Operations

Cumulative plus project traffic volumes were determined by adding the project trips to the Cumulative Baseline traffic volumes. Figure 14 shows the Cumulative plus project weekday AM and PM peak hour traffic volumes at the study intersections.

An intersection operations analysis was conducted for the study area to evaluate the Cumulative plus Project weekday AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described previously. Table 11 provides a comparison between the Cumulative without and with-project conditions.

As shown in Table 11, all of intersections would operate with a satisfactory LOS in Opening Year plus Project Condition except for Nason Street/Bay Avenue. Nason Street/Bay Avenue is projected to operate at unacceptable LOS F in both the AM and PM peak hour.

The mitigation discussed in the Existing plus Project and Opening Year plus Project section continues to mitigate the impact in the Cumulative Plus Project. As shown in Table 11, Nason Street/Bay Avenue is projected to operate at LOS A in the AM and PM peak hour with the mitigation improvements implemented.

Table 11. Cumulative and Cumulative plus Project Peak Hour Levels of Service

Intersection	Signal Control	Cumulative				Cumulative plus Project				Impact?	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	AM	PM
1. Lasselle St/Cottonwood Ave	Signal	23.9	C	22.0	C	25.0	C	22.3	C	No	No
2. Morrison St/Cottonwood Ave	Signal	25.7	C	24.0	C	27.1	C	24.1	C	No	No
3. Nason St/Eucalyptus Ave	Signal	35.7	D	21.8	C	37.8	D	22.0	C	No	No
4. Nason St/Cottonwood Ave	Signal	19.8	B	17.1	B	32.9	C	18.2	B	No	No
5. Nason St/Bay Ave	TWSC	48.8	E	55.5	F	442.3	F	86.1	F	Yes	Yes
6. Nason St/Alessandro Blvd	Signal	32.7	C	27.0	C	33.7	C	27.2	C	No	No
7. Moreno Beach Dr/Cottonwood Ave	Signal	25.8	C	20.8	C	33.4	C	22.0	C	No	No
8. Moreno Beach Dr/Alessandro Blvd	Signal	40.1	D	45.3	D	43.1	D	45.6	D	No	No
9. Nason St/Project Driveway	TWSC	-	-	-	-	22.9	C	15.9	C	No	No
10. Project Driveway/Bay Ave	TWSC	-	-	-	-	8.3	A	7.6	A	No	No
11. Nasson St/Dracaea Ave	Signal	25.3	C	12.2	B	30.5	C	12.9	B	No	No
Intersection		**Cumulative**				**Cumulative plus Project MIT**				**Impact?**	
		AM Peak		PM Peak		AM Peak		PM Peak			
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	AM	PM
5. Nason St/Bay Ave	TWSC	48.8	E	55.5	F	8.8	A	4.1	A	No	No

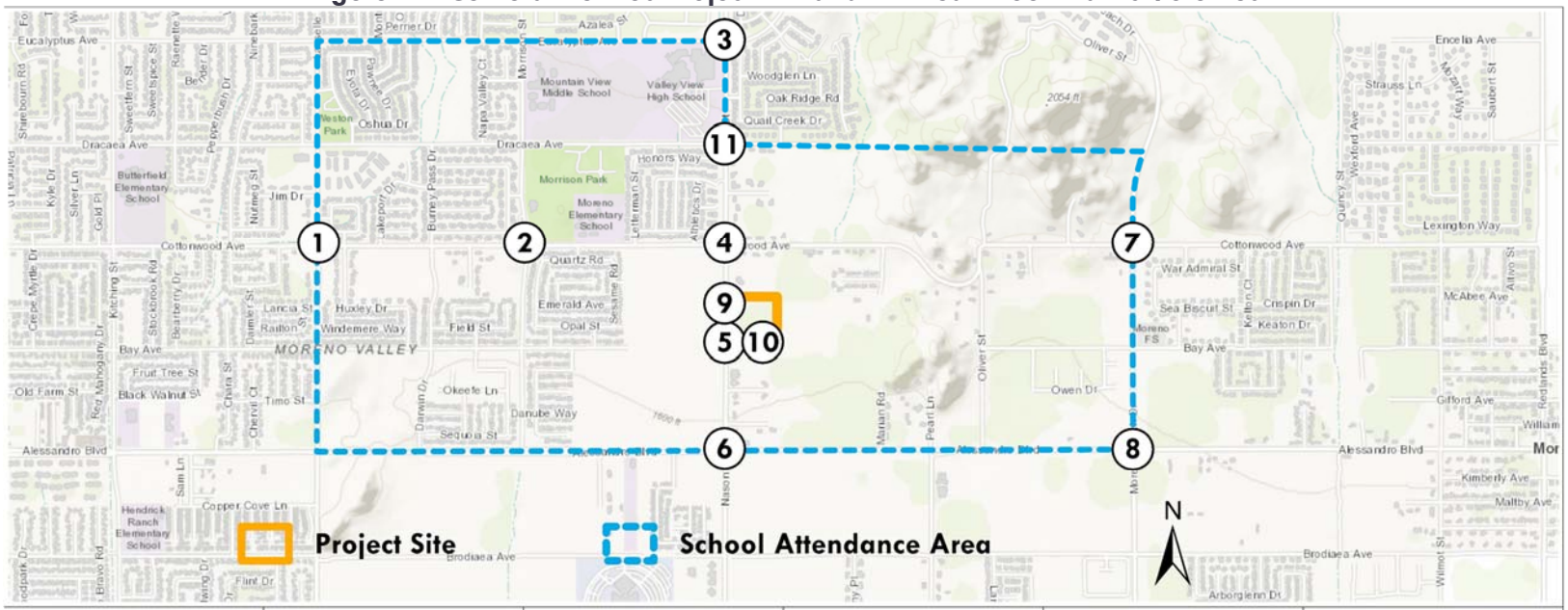
Unsatisfactory Level of Service

TWSC = Two-Way Stop Controlled

[1] Delay in Seconds

[2] Level of Service

Figure 14: Cumulative Plus Project AM and PM Peak Hour Traffic Volumes



1 Lasselle St/Cottonwood Ave	2 Morrison St/Cottonwood Ave	3 Nason St/Eucalyptus Ave	4 Nason St/Cottonwood Ave	5 Nason St/Bay Ave	6 Nason St/Alessandro Blvd
↖ 75/25 ↓ 280/255 ↘ 59/22	↖ 80/20 ↓ 167/93 ↘ 93/24	↖ 95/85 ↓ 1231/1038 ↘ 10/12	↖ 155/163 ↓ 1150/937 ↘ 42/50	← 1178/919 ↘ 225/51 ∪ 52/12	↖ 138/93 ↓ 935/714 ↘ 100/105
30/21 ↗	78/29 ↗	224/121 ↗	127/122 ↗	890/1111 → ↖ 2/0	102/136 ↗
207/191 →	305/201 →	207/156 →	65/50 →	↗ 35/9	252/425 →
65/92 ↘	12/10 ↘	269/98 ↘	174/75 ↘		196/127 ↘
98/72 ↑	31/8 ↑	97/92 ↑	59/17 ∪		109/168 ↑
346/313 →	224/119 →	812/856 →	145/85 ↑		634/867 →
88/43 ↗	114/34 ↗	176/277 ↗	876/979 →		43/148 ↗
			63/20 ↗		
↖ 76/19	↖ 133/22	↖ 31/23	↖ 114/46		↖ 180/86
← 321/177	← 325/222	← 138/156	← 68/56		← 442/257
↙ 73/56	↙ 79/30	↙ 154/201	↙ 76/25		↙ 126/20

7 Moreno Beach Dr/Cottonwood Ave	8 Moreno Beach Dr/Alessandro Blvd	9 Nason St/Project Driveway	10 Project Driveway/Bay Ave	11 Nasson St/Dracaea Ave	
↖ 54/59 ↓ 466/825 ↘ 26/63	↖ 133/126 ↓ 443/688 ↘ 29/20	↓ 1454/981		↖ 257/123 ↓ 1213/1027 ↘ 11/13	
50/32 ↗	82/113 ↗			143/119 ↗	
65/37 →	135/262 →		258/59 ↗	10/3 →	
25/23 ↘	75/85 ↘	↗ 293/84	2/1 →	123/54 ↘	
15/14 ↑	149/79 ↑	858/1103 →		252/59 ↑	
648/584 →	590/515 →	86/20 ↗		1043/1210 →	
39/38 ↗	36/51 ↗		← 4/1	12/18 ↗	
↖ 50/50	↖ 24/30			↖ 10/8	
← 102/45	← 312/144			← 25/6	
↙ 48/42	↙ 85/88			↙ 31/12	

xx/yy = AM/PM Peak Hour Trip Assignment
① = Project Study Area Intersection

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5.4 Roadway Operations Analysis

Daily volumes along two roadway segments, Nason Street between Bay Avenue and Cottonwood Avenue and Nason Street between Alessandro Boulevard and Bay Avenue, were evaluated in the Existing, Existing plus Project, Opening Year, Opening Year plus Project, Cumulative, and Cumulative Plus Project conditions. Roadway capacities provided in the City of Moreno Valley, *Traffic Impact Analysis Preparation Guide* were utilized for the analysis. Table 12 shows the daily roadway levels of service for the two roadway segments. As shown in the table, the two roadway segments are forecast to operate with satisfactory LOS C or better in all baseline and plus project conditions.

Table 12. Daily Roadway Levels of Service

			Existing			Existing plus Project		
Roadway	**Type**	**Capacity**	**Volume**	**V/C Ratio**	**LOS**	**Volume**	**V/C Ratio**	**LOS**
Nason St Between Cottonwood Ave/Bay Ave	4-Lane Divided	37,500	21,923	0.585	A	23,719	0.633	B
Nason St Between Bay Ave/Alessandro Blvd	4-Lane Divided	37,500	21,923	0.585	A	22,282	0.594	B
			Opening Year			Opening Year plus Project		
Roadway	**Type**	**Capacity**	**Volume**	**V/C Ratio**	**LOS**	**Volume**	**V/C Ratio**	**LOS**
Nason St Between Cottonwood Ave/Bay Ave	4-Lane Divided	37,500	24,115	0.643	B	25,911	0.691	B
Nason St Between Bay Ave/Alessandro Blvd	4-Lane Divided	37,500	24,115	0.643	B	24,475	0.653	B
			Cumulative			Cumulative plus Project		
Roadway	**Type**	**Capacity**	**Volume**	**V/C Ratio**	**LOS**	**Volume**	**V/C Ratio**	**LOS**
Nason St Between Cottonwood Ave/Bay Ave	4-Lane Divided	37,500	26,231	0.699	B	28,027	0.747	C
Nason St Between Bay Ave/Alessandro Blvd	4-Lane Divided	37,500	26,231	0.699	B	26,590	0.709	C

Source: City of Moreno Valley, *Traffic Impact Analysis Preparation Guide* , August 2007.

5.5 Queuing Analysis

5.5.1 Morning Drop-Off Queuing

A queuing analysis for the on-site drop-off/pick-up area was prepared using the Stochastic Queuing Analysis methodology from Traffic Flow Fundamentals, by Adolf D. May[1]. Since this study has no limit on queue length, has a "first in, first out" (FIFO) service type, and a random distribution of arrival and service times, the queuing performance was calculated according to the Random Service Problem equations. These equations provide an estimate of the average number of vehicles in the queue at any time, based upon the number of vehicles that enter each hour and the length of time each vehicle is in the queue.

The mean arrival rate (λ) was determined to be 205 vehicles during the AM peak hour. This number includes the 258 vehicles using the Bay Avenue driveway shown in the trip assignment, and assumes a reduction for kindergarten parents, as Kindergarten starts earlier than grades 1-5 and would therefore not be included in the peak 15-minute volume. Because the vehicles would most likely arrive during a peak 15 -minute period, a PHF of 0.25 was applied to the inbound traffic volume resulting in an inbound hourly volume of 1,032 vehicles. The average completion time (T) is the time that it takes for a car to enter the site, drop-off a student and depart. This time would include approximately 30 seconds for vehicles to move up into the drop-off area (440 feet at 10 mph), plus 30 seconds for children to unload. An assumption of 1 minutes, or 0.167 hours, was used for the completion time (T).

[1] Adolf D. May, *Traffic Flow Fundamentals* (Prentice-Hall, Inc., 1990).

The first step in the analysis is to determine the mean service rate (μ). The mean service rate (μ) is the number of vehicles that can pass through the queue in an hour, based on the mean arrival rate (λ) and completion time (T). The mean service rate (μ) was determined using the equation $\mu=(1/T)+\lambda$, and was found to be 1,092 vehicles per hour[2]. The calculation is shown below:

1. $\mu=(1/T)+\lambda$

   T (Average Completion Time) = 1 minute (0.0167 hours)

   λ (Mean Arrival Rate) = 1,032 vehicles/hour

   μ (Mean Service Rate) = To be calculated

   $\mu = (1/0.0167 \text{ hr}) + 1{,}032 \text{ veh/hr}$

   $\mu = 1{,}092 \text{ veh/hr}$

After determining the mean arrival and service rate, the ratio of the arrival rate to the service rate is used to calculate the Traffic Intensity (ρ) {$\rho = \lambda/\mu$}. The calculation is shown below:

2. $\rho = \lambda/\mu$

   λ (Peak Arrival Rate) = 1,032 vehicles/hour

   μ (Mean Service Rate) = 1,092 veh/hour

   ρ (Traffic Intensity) = To be calculated

   $\rho = 1{,}032/1{,}092$

   $\rho = 0.945$

The Traffic Intensity is then used to calculate the average number of cars in the queue using the equation $E(n) = \rho/(1- \rho)$. The calculation is shown below:

3. $E(n) = \rho/(1- \rho)$

   ρ (Traffic Intensity) = 0.945

   E(n) (Cars in the Queue) = To be calculated

   $E(n) = 0.945/(1-0.945)$

   $E(n) = 17.2 \approx 18$ veh

Based upon these calculations, it was determined that an average of18 vehicles may be queued at any time during the morning drop-off. The project site plan includes space for approximately 20 vehicles in the drop-off area, with space for an additional 13 vehicles on-site. However, the 85th percentile queue is 33 vehicles, which is the total on-site capacity. This means that there would be

[2] David G. Messerschmitt, *Reliability and Queuing*
http://www.eecs.berkeley.edu/~messer/netappc/Supplements/13-reliability.pdf

a short period of time each morning (approximately 3 to 4 minutes) when vehicles would queue on Bay Avenue. The project site plan includes an eastbound queuing/left-turn lane at the project driveway that would extend to the back of the westbound left-turn lane at Bay Avenue. The westbound left-turn lane at Nason Street has not yet been designed, however it is anticipated that the eastbound left-turn lane at the project driveway could provide approximately 275 feet of queuing, or space for an additional 12 vehicles.

5.5.2 Afternoon Pick-Up Queuing

Afternoon pick-up operation would operate differently than the morning drop-off as parents generally line up prior to the bell and wait for the dismissal. According to District staff, the dismissal will be staggered by grade to avoid excessive queuing during the afternoon period. Kindergarten will be dismissed first. Generally, Kindergarten parents will park and walk into the school to pick up children and would therefore not be queued-up. Approximately 20 minutes after the Kindergarten dismissal, grades 1, 2, and 3 would be dismissed with grade 4 and 5 being dismissed another 20 minutes later. Although this study evaluated 950 students, this is the total capacity of the school in the future with modular classrooms. The school is planned to operate in the near term with approximately 800 students. Of the 800 students, approximately 100 students would be bussed to and from school. An additional 90 students would participate in the City's after-school program, "Think Together", held at the school site. The remaining 610 students would be picked-up according to the sample dismissal schedule shown below:

Grade K: 2:00 - 102 students (parents park)
Grades 1, 2, and 3: 2:20 – 306 students
Grades 4 and 5: 2:40 - 204 students

The number of inbound vehicles per student can be determined using the inbound trip rate for the afternoon dismissal period from the Institute of Transportation Engineers, *Trip Generation*, 10th Edition. The inbound trip generation rate is 0.153 trips per student, resulting in approximately 47 inbound vehicles during the peak pick-up period when Grades 1, 2, and 3 are dismissed. As noted previously, there is space on-site for approximately 33 vehicles to queue. The additional 14 vehicles may queue on Bay Avenue.

According to the project civil engineer, Bay Avenue adjacent to the project will be designed with a parking lane on the north side of the street, adjacent to the school. There would be 224 feet of parking available east and west of the school driveway, providing space for up to 20 vehicles to queue on Bay Avenue, which is more than adequate to accommodate the expected 14 vehicles.

5.5.3 Intersection Queuing Analysis

In addition, A queuing analysis was prepared for each study area intersection comparing the potential queue in the left and right-turn storage lanes with the available vehicle storage. The queue was determined from the 95th Percentile Queue shown on the LOS Sheets in Appendix C. Two intersections had a queuing impact with no mitigation implemented, and those three intersection's queuing results are shown in Table 13 along with Nason Street/Bay Avenue with the LOS mitigation discussed in the Existing plus Project section. An impact would occur if the project causes an existing queue to increase past the storage length, or the project adds one vehicle length (25ft) to an already deficient queue.

As shown in Table 13, the following intersections would be impacted by the project:

- Nason Street/Cottonwood would have an impact on the north bound left queue in the Cumulative plus Project condition during the AM peak hour, as well as the east bound right queue in all three plus Project conditions during the AM peak hour.
- Nason Street/Dracaea Avenue would have an impact on the north bound left queue in the Opening Year plus Project and Cumulative plus Project conditions during the AM peak hour.
- Nason Street/Bay Avenue would have a direct impact at the south bound left-turn queue in all three plus Project conditions during the AM peak hour.

At the intersection of Nason Street/Eucalyptus Avenue, the east bound right-turn queue (292 feet) would extend beyond the storage length (235 feet) in the Opening Year plus Project and Cumulative plus Project AM conditions, but due to the geometrics of the intersection, this is not considered an impact. The east bound through queue (207 feet) would not extend past the eastbound de-facto right turn lane, so the eastbound right-turn movement would not be impeded by the through volume queue. The east bound left queue would extend past the storage length but would not impede the through volumes due to the double turn left lane that extends well past the projected queue, and would not be considered an impact due to the project not adding any delay to the queue. The east bound right queue would also extend past the storage length, but would also not impede the through volumes because the right turn movement and through movement do not conflict.

Below are the mitigation measures to mitigate the impacts at Nason Street/Cottonwood Avenue, Nason Street/Bay Avenue with the signal improvement, and Nason Street/Dracaea Avenue.

- Nason Street/Cottonwood Avenue: Extend the north bound left and east bound right turn storage length.
- Nason Street/Bay Avenue: Extend the south bound left turn queue storage length.
- Nason Street/Dracaea Avenue: Extend the north bound left turn storage length.

A detailed description of the mitigation improvements can be found in section *5.7* Summary of Impacts and Mitigation Measures.

Table 13. Turn Lane Queue Analysis

Nason St/Cottonwood Ave									Nason St/Dracaea Ave									
	Northbound		Southbound		Eastbound		Westbound			Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	LT	RT	LT	RT		LT	RT	LT	RT	LT	RT	LT	RT
Storage Length	235	155	280	390	120	85	310	135	Storage Length	245	110	310	190	275	N/A	260	N/A
Existing (Plus Project)									**Existing (Plus Project)**								
Queue Lengh	50/29 (214/68)	2/1 (27/7)	38/27 (38/27)	54/44 (69/48)	138/117 (138/117)	27/21 (110/36)	10/11 (103/29)	43/13 (43/13)	Queue Lengh	204/49 (233/58)	3/3 (3/3)	11/15 (11/15)	88/24 (91/25)	118/110 (117/110)	N/A	36/15 (37/15)	N/A
Opening Year (Plus Project)									**Opening Year (Plus Project)**								
Queue Lengh	60/32 (230/72)	2/1 (28/7)	44/30 (45/30)	63/52 (81/56)	164/128 (164/128)	30/23 (120/38)	11/12 (114/30)	50/14 (50/14)	Queue Lengh	243/54 (333/63)	3/4 (3/4)	13/16 (15/16)	115/29 (136/29)	152/121 (185/121)	N/A	47/16 (58/17)	N/A
Cumulative (Plus Project)									**Cumulative (Plus Project)**								
Queue Lengh	83/57 (271/102)	2/1 (32/8)	62/49 (62/49)	75/62 (100/65)	193/137 (193/137)	55/29 (170/45)	13/12 (134/30)	73/20 (72/20)	Queue Lengh	309/58 (353/67)	3/4 (3/4)	16/17 (16/17)	134/30 (141/30)	195/130 (195/130)	N/A	60/18 (62/18)	N/A
Queue Exceeds Storage?	Yes	No	No	No	Yes	Yes	No	No	Queue Exceeds Storage?	Yes	No	No	No	No	N/A	No	N/A

Nason St/Eucalyptus Ave									Nason St/Bay Ave With LOS Mitigation								
	Northbound		Southbound		Eastbound		Westbound			Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	LT	RT	LT	RT		LT	RT	LT	RT	LT	RT	LT	RT
Storage Length	310	155	280	200	275	235	270	140	Storage Length	N/A	N/A	190	N/A	N/A	N/A	N/A	N/A
Existing (Plus Project)									**Existing (Plus Project)**								
Queue Lengh	93/64 (117/69)	67/89 (75/91)	14/12 (14/12)	39/21 (40/22)	335/151 (335/151)	179/49 (197/52)	183/182 (208/186)	10/6 (10/6)	Queue Lengh	N/A	N/A	1/0 (247/63)	N/A	N/A	N/A	N/A	N/A
Opening Year (Plus Project)									**Opening Year (Plus Project)**								
Queue Lengh	123/73 (147/77)	86/104 (96/106)	18/14 (18/14)	51/25 (53/25)	436/164 (432/164)	225/55 (246/57)	223/200) (244/207)	15/7 (15/7)	Queue Lengh	N/A	N/A	0/0 (247/113)	N/A	N/A	N/A	N/A	N/A
Cumulative (Plus Project)									**Cumulative (Plus Project)**								
Queue Lengh	146/110 (172/115)	97/114 (108/116)	20/14 (20/14)	56/27 (58/27)	466/164 (463/164)	266/62 (292/64)	245/210 (270/216)	21/8 (21/8)	Queue Lengh	N/A	N/A	0/0 (247/80)	N/A	N/A	N/A	N/A	N/A
Queue Exceeds Storage?	No	No	No	No	Yes	Yes	No	No	Queue Exceeds Storage?	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A

Note: LT = Left-turn Lane, RT = Right-turn Lane
Queue length reported in feet for the AM/PM peak periods

5.6 Signal Warrant Analysis

A peak hour traffic signal warrant analysis was prepared for Nason Street/Bay Avenue as it was found to be operating at unsatisfactory LOS in all baseline plus Project conditions. The warrant analysis was prepared using the criteria outlined in the California Manual on Uniform Traffic Control Devices (MUTCD), Section 4C.04 – Warrant 3, Peak Hour. The MUTCD notes that Warrant 3 is for use at a location where "traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street". Due to the onsite circulation, all of the inbound left turns on Nason Street/Bay Avenue exit at the project driveway on Nason Street instead of coming back out at Nason Street/Bay Avenue. As a result, the westbound volume on Bay Avenue would not be significantly affected by the project. Therefore, The option provided on Page 828, Line 13 was used. This option states: "At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the "minor street" volume and both approaches of the major street minus the higher of the major-street left-turn volume as "major street" volume." Nine traffic signal warrants are provided in the MUTCD for evaluating various conditions that may require a traffic signal. The MUTCD notes that "the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal". As such, this warrant analysis is provided only as an indicator of whether installation of a traffic signal could mitigate unsatisfactory levels of delay at intersections operating with unsatisfactory levels of service. A summary of the warrant analysis if provided in Table 14.

Table 14. Traffic Signal Warrant Analysis Summary

Nason St/Bay Ave	Baseline		Baseline plus Project	
	AM	**PM**	**AM**	**PM**
Existing	No	No	Yes	No
Opening Year	No	No	Yes	No
Cumulative	No	No	Yes	No

As shown in Table 15, Nason Street/Bay Avenue would meet the minimum volumes outlined in Warrant 3 – Peak Hour in all three scenarios for the Baseline plus Project during the AM peak hour.

Another warrant analysis was prepared using the criteria outlined in the MUTCD, Section 4C.06 – Warrant 5, School Crossing. The MUTCD notes that Warrant 5 is for use at a location where "the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal". The minimum requirement for student crossing is 20 schoolchildren in the peak hour. With a student body of 950, it is very likely that the minimum threshold would be met. However, this will only occur once the vacant land west of Nason Street is developed, and there is currently no development plans for that area. Therefore, the 20 schoolchildren threshold would not be met by the Cumulative scenario and Nason Street/Bay Avenue would not meet Warrant 5.

Nason Street/Bay Avenue would meet the signal warrant outlined in Warrant 3 and would be expected to meet the signal warrant outlined in Warrant 5 in the future as the area is built out. In

addition, no other measure would mitigate the project impact other than a signal. Therefore, a signal is recommended for Nason Street/Bay Avenue.

5.7 Summary of Impacts and Mitigation Measures

The project would create significant project impacts at three intersections: Nason Street/Cottonwood Avenue, Nason Street/Bay Avenue, and Nason Street/Dracaea Avenue. Listed below are the specific impacts and mitigation measures discussed above at each intersection.

4# Nason Street/Cottonwood Avenue

The project would have a direct project impact on the northbound left-turn queue and the eastbound right-turn queue at Nason Street/Cottonwood Avenue in all three conditions during the AM peak hour. To mitigate the queuing impact, it is recommended that the north bound left-turn and east bound right-turn be extended. 271 feet of queuing should be provided in the northbound direction and 170 feet of queuing should be provided in the eastbound direction. This would require modifications to the median on Nason Street south of Cottonwood Avenue as well as extending the north bound left-turn striping for the north bound left-turn. For the east bound right turn this would require extending the paving and striping. The extensions fit within the available right of way. This improvement has been reviewed by the project's civil engineer and found to be feasible.

5# Nason Street/Bay Avenue

The project would cause a significant cumulative impact on LOS at Nason Street/Eucalyptus Avenue in all analyzed conditions in both the AM and PM peak hour. To mitigate this impact, it is recommended that a traffic signal be constructed. Nason Street/Bay Avenue would operate at LOS A in the AM and PM peak hour with implementation of the mitigation measure. Table 16 shows the fair share calculation of the project impact, however the District has committed to construct the traffic signal as part of the proposed project.

Table 15. Fair Share Calculation

Intersection		Existing	Project	Cumulative With Project	Total New Traffic	Project % of New Traffic
AM Peak Hour						
5.	Nason Street/Bay Avenue	1664	403	2384	720	55.97%
PM Peak Hour						
5.	Nason Street/Bay Avenue	1649	96	2103	454	21.15%

The project does not cause an impact on queuing in the existing intersection configuration. However, with implementation of the mitigation described above, a direct queuing impact occurs on the south bound left-turn queue in all three conditions during the AM peak hour. To mitigate this impact, it is recommended to extend the southbound left-turn storage to provide 247 feet of storage to accommodate the south bound left-turn queue. This would require modification to the existing median to accommodate the south bound left-turn lane on Nason Street north of Bay Avenue. The extension would fit in the available right of way on Nason Street.

11# Nason Street/Dracaea Avenue

The project would have a direct project impact at Nason Street/Dracaea on the north bound left-turn queue in the Opening Year condition during the AM peak hour, and a cumulative project impact on the north bound left-turn queue in the Cumulative condition during the AM peak hour. To mitigate the impact, it is recommended that the northbound left-turn storage length be increased to accommodate the queue. This would require modification of the median on Nason Street south of Dracaea Avenue and extension of the northbound left-turn to provide 353 feet of storage. The proposed extension has been preliminarily reviewed by the projects civil engineer who found that the improvement would fit in the available right of way.

APPENDIX A – TRAFFIC STUDY SCOPING AGREEMENT

MORENO VALLEY

SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

Date: April 15, 2020

This letter acknowledges the City of Moreno Valley Transportation Engineering Division requirements for the traffic impact analysis of the following project.

Case No.	PPA19-0005
Project Name:	Proposed Moreno Elementary School Replacement
Project Address:	13636 Nason Street
Project Description:	Moreno Valley Unified School District (MVUSD or District) is proposing to replace the existing Moreno Elementary School with a new elementary school (project site). The new school would be 0.5 mile from the existing school. The new K-5 elementary school would provide space for up to 950 students. This school would accommodate the existing 483 students at the existing Moreno Elementary school and future planned residential development in Moreno Valley. The campus would have a 77,000-sf two-story U-shaped building with 38 classrooms and 5 portable classrooms for future expansion, hardscape (walkways and hardcourts), two parking lots, playgrounds, and turf playfields. The main campus entry would be accessed from Bay Avenue to the south via one-way drive aisles. A one-way student drop-off/ pick-up lane would be along the front of the school. Vehicles would enter the south driveway and exit using the west driveway onto Nason Street. The driveway on Nason will allow right in/right out turn movements only, While the driveway on Bay will have no exit but will have a dedicated left turn lane and shared right turn lane on Bay Avenue for vehicle ingress. Visitor parking is located along the west edge of the Project

Site, while a staff parking lot and bus lanes would be located at the north east corner of the Project Site. Staff and School Busses are expected to enter at the driveway on Nason Street, which will be marked as Staff Only. Therefore, it is anticipated that with the proposed school plans, student drop-off/pick-up will be contained on-site with parents entering the site from Bay Avenue and exiting to Nason Street.

The potential for queuing at the project's drop-off areas will be evaluated, as well as pedestrian circulation

	Consultant	Developer
Name:	Meghan Macias, TE	John Nichols
Address:	EPD Solutions 2 Park Plaza, Suite 1120 Irvine, CA 92618 meghan@epdsolutions.com	Moreno Valley Unified School District jnichols@mvusd.net
Telephone:	949-794-1186	

I. Background

The project description is provided above. The project location is the 8.97-acre parcel located at the northeast corner of Bay Avenue and Nason Street (Assessor Parcel Number [APN] 488-190-034). The proposed elementary school's main entrance will be constructed at the southern portion of the project site, along Bay Avenue. The project open year would be 2022. The site plan for the new Elementary School is attached.

The proposed school would replace the Moreno Elementary School at 26700 Cottonwood Avenue, which has a current enrollment of 483 students in grades K to 5. Students. The existing Moreno Elementary School would then be used for the Rainbow Springs Pre-school (currently located at 23990 Eucalyptus Street) which has an enrollment of approximately 300 pre-school students.

The Rainbow Springs Pre-School campus would be spilt to house the District Security Department on the northern portion of the campus and a private school on the southern portion of the campus (with an enrollment capacity of 40 students). The previous Rainbow Springs Pre-School School campus will house approximately 20 District employees.

Note that the proposed project would be transferring existing students at Moreno Elementary School to the project site on Nason Street, many of the vehicular trips in the area already occur. However, since it is unclear how the existing trips are distributed, the full proposed project trip generation will be analyzed. The proposed project will be a single-phase project.

The following describes the existing and proposed uses at the 4 components of the project and the Table below summarizes the various components of the project:

1. Nason Street Project Site

    - Existing vacant District owned property.

    - Proposed: Construct new Moreno Elementary School with thirty-eight classrooms in a two-story building, five portable classrooms for future expansion, outdoor play area, and two parking lots (one along Nason Street the other at the north east corner of the site). The 483 students of the existing Moreno Elementary School would transfer to the Nason Street project site, which will have an enrollment capacity of 950 students, grades TK-5. The operation of an elementary school at this site will result in a substantial increase in trips and is the focus of the traffic study.

2. Moreno Elementary School

    - Existing enrollment 479 students grades k-5.

    - Proposed: House 500 students K-12 (pre-school and SELPA students) from Rainbow Springs and SELPA (formerly in the District Main Office). SELPA students are primarily bused instead of dropped off by parents. Therefore, it is expected that there would be a decrease in trips in the vicinity of this location and no traffic analysis will be prepared for this site.

3. Rainbow Springs Pre-School

    - Existing enrollment of 300 pre-school students up to grades K.

    - Proposed: Converted into the District Security Department with 20 District Staff and private Montessori School with an enrollment capacity of 40 students. This transfer will result in a decrease in trips at this location.

4. District Main Office

    - Existing occupancy of 60 District Employees and 200 SELPA special education students with 20 staff.

    - Proposed: The District Main Office will house 40 District staff. This transfer will create a decrease in trips at this location.

Site	Existing Facility	Location	Existing Use	Existing Occupancy	Proposed Facility Reuse	Proposed Use	Proposed Occupancy	Net Change
1	Residential	NE corner of Nason Steet & Bay Avenue	House, garage, barn, former citrus grove	~5 residents	New Moreno Elementry School	Public School: Kindergarten to 5th grade	950 students	+950 students -5 SFDUs
2	Moreno Elementary School	26700 Cotttonwood Avenue	Public School: Transitional Kindergarten to 5th grade	479 students	Rainbow Springs & SELPA	Special Education Facility Rainbow Springs - Birth to Kindergarten age SELPA program- Kindergarten through 12th grade	500 students (Rainbow Springs = 300 students + 70 staff; SELPA = 200 students + 20 staff	+500 students - 479 students
3	Rainbow Springs	23990 Eucalyptus Avenue	Special Education: Birth to Kindergarten age	300 students	District Security Department and Private School	Office + school	Office = 20 employees School = 40 students	+20 office employees - 260 students
4	District Main Office	25634 Alessandro Boulevard	District Main Office & Special Education Local Plan Area (SELPA) program - Kindergarten through 12th grade	Office: 60 employees SELPA: 200 students	District Main Office (unchanged)	District Main Office	40 employees	-20 employees - 200 students

II. Trip Geographic Distribution and Assignment*

The Moreno Valley Unified School District High School Attendance Boundaries is attached. The trip distribution maps have been prepared based on the school attendance boundaries, student residence approximate locations to be provided by the school district, and traffic counts taken in the study area. Project trip distribution maps are provided for City staff for review and approval.

N: __%__ **S:** __%__ **E:** __%__ **W:** __%__

*The proposed trip distribution is shown on the attached trip distribution (Figure 4). As noted in the project description, access to the site for student drop-off will be from Bay Avenue, while staff and busses will enter from Nason Street. Approximately 25

percent of vehicles will enter at the Nason Street driveway with the remaining 75 percent entering on Bay Avenue. 100 percent of vehicles will exit the site at the Nason Street driveway. The project trip assignment is shown in Figure 5.

III. Site Trip Generation Forecast

A. ITE Trip Generation Manual (10th Edition)
B. AM Peak: 7:00-9:00 AM (based upon existing 24-hour traffic counts)
C. PM Peak: 4:00-6:00 PM (based upon existing 24-hour traffic counts)
D. Intersection and link acceptable Level of Service "D" for some intersections and links and Level of Service "C" for others based upon the current City policy. (Use Highway Capacity Manual - latest edition - operations procedures; parameters per County of Riverside Traffic Impact Analysis Guidelines.)

Proposed Use Rates*
Land Use (per student): Daily:1.89 AM:0.67 PM:0.17

Existing Use Rates*
Land Use (per unit): Daily:0 AM: 0 PM:0

Internal Trip Allowance: Yes _____ No __X__ Percentage _____

Pass-by Trip Allowance: Yes _____ No __X__ Percentage _____

Use	Size	Unit	AM Peak Hour		AM Total	PM Peak Hour		PM Total	Daily Trips
			In	Out		In	Out		
New ES (Site 1)	950	Students	344	293	637	78	84	162	1,796
Existing/ Approved	483	Students	175	149	324	39	43	82	913
Difference	467	Students	169	144	313	39	41	80	883

* Trip generation rates per the ITE Trip Generation Manual, 10th Edition.

IV. Specific Project Issues to be Analyzed

A. The focus of this traffic study will be on addressing the adequacy of site access and identifying specific near-term and future circulation improvements required in

the study area to maintain acceptable peak hour and daily levels of service (LOS).

B. The traffic study will address the project traffic impacts at all study intersections listed in Section VI and provide appropriate mitigation measures if applicable. Peak-hour traffic signal warrants shall be evaluated for all intersections that are not currently signalized.
C. The traffic study will include a section that discusses the difference in trip generation between the existing school and the proposed project.
D. The traffic study will provide a Queuing Analysis section to determine the 95th percentile queues and the minimum requirement of storage length for right and left-turn movements at all studied intersections based on forecasted E+P (V.C), Opening Year + Project (V.E) traffic volumes. If there is not sufficient queuing storage length available, the traffic study shall provide mitigation measures to resolve such issue.
E. The traffic study will provide a detail analysis of available on-site parking based on the project site plan. Parking demand will be calculated using the ITE Parking Generation Manual 5th Edition - Land Use 520 for 950 students. If there is not sufficient on-site parking stalls available, the traffic study shall provide mitigation measures to resolve such issue.
F. Qualitative assessment of existing and planned non-motorized facilities (e.g., pedestrians, bike routes, trails, etc.) within the study area.
G. Queuing during the AM peak student drop-off period has been evaluated to confirm whether the drop-off area shown in the project site plan would be adequate. A queuing analysis is provided as attachment 1 and provides an evaluation of the proposed on-site and off-site queuing lanes.
H. The traffic study shall be updated with a VMT analysis after the City has adopted. VMT threshold and guidelines as required by SB 743.

V. Study of Horizon Years

A. Existing
B. Existing + Project
C. Existing + Ambient Growth (existing to opening year***, assume growth rate of 2% per year)
D. Existing + Ambient + Project
E. Existing + Ambient + Cumulative
F. Existing + Ambient + Cumulative + Project

*****Opening year should have five (5) year minimum horizon**

VI. Facilities to be Studied

A. Intersections
   1. Lasselle Street at Cottonwood Avenue
   2. Morrison Street at Cottonwood Avenue

3. Nason Street at Eucalyptus Avenue
4. Nason Street at Cottonwood Avenue
5. Nason Street at Bay Avenue
6. Nason Street at Alessandro Boulevard
7. Moreno Beach Drive at Cottonwood Avenue
8. Moreno Beach Drive at Alessandro Boulevard
9. Nason Street Driveway
10. Bay Street Driveway
11. Nason Street at Dracaea Avenue

B. Roadway Segments
   1. Nason Street between Bay Avenue and Alessandro Boulevard
   2. Nason Street between Bay Avenue and Cottonwood Boulevard

VII. Deliverables

A. Draft traffic impact study (2 copies + pdf file on a CD or USB drive)
B. Final traffic impact study (4 copies + pdf file on a CD or USB drive)

All draft and final traffic impact studies shall be delivered with the $3,118 review fee to the Permit Technician, Land Development Division, Moreno Valley City Hall, 14177 Frederick Street, Moreno Valley, CA 92552. Please contact the Land Development Division at 951-413-3110 prior to the delivery of the traffic study.

A signed copy of this Scoping Agreement must be included in the submitted draft and final traffic impact studies.

If you have any questions regarding this *Scoping Agreement*, please contact Meghan Macias at (949) 794-1186.

Recommended By:

Meghan Macias

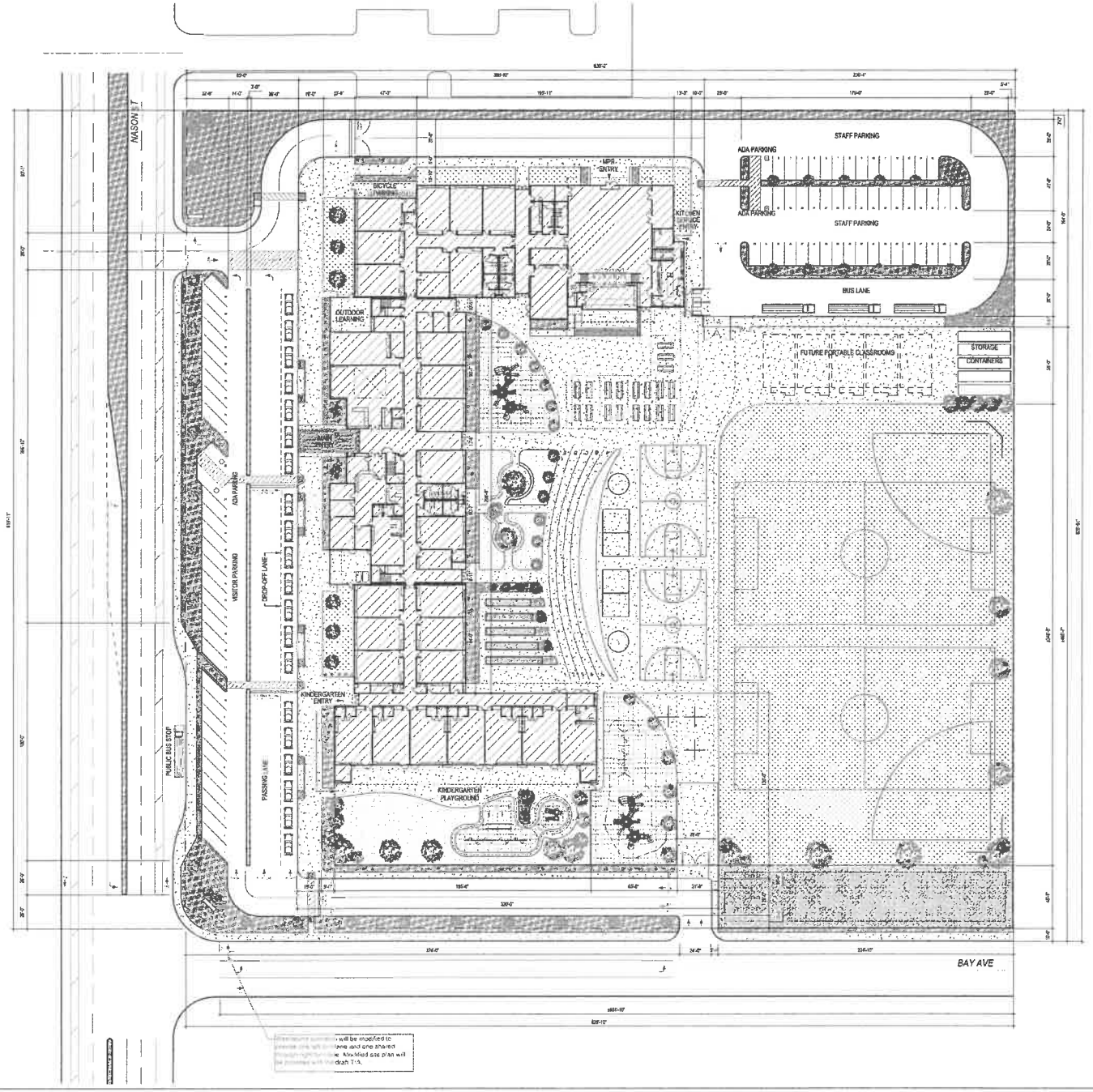
Meghan Macias, TE
Traffic Engineer
EPD Solutions

Approved By:

Eric Lewis, P.E., T.E.

City Traffic Engineer

NOTE: This scoping agreement was reviewed and approved based on the information submitted by *EPD Solutions* on 04/15/2020. *EPD Solutions* and the project applicant acknowledge that any changes to the project (zoning, project phasing, size, type of use, number or location of access points,etc.) after 04/15/2020 may require this scoping agreement to be revised and resubmitted for review and approval by the City of Moreno Valley.



OVERALL SITE PLAN

1" = 30'-0"

1

ARCHITECTS
WLC
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MORENO VALLEY UNIFIED SCHOOL DISTRICT

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LICENSED ARCHITECT STATE OF CALIFORNIA

CONSULTANT

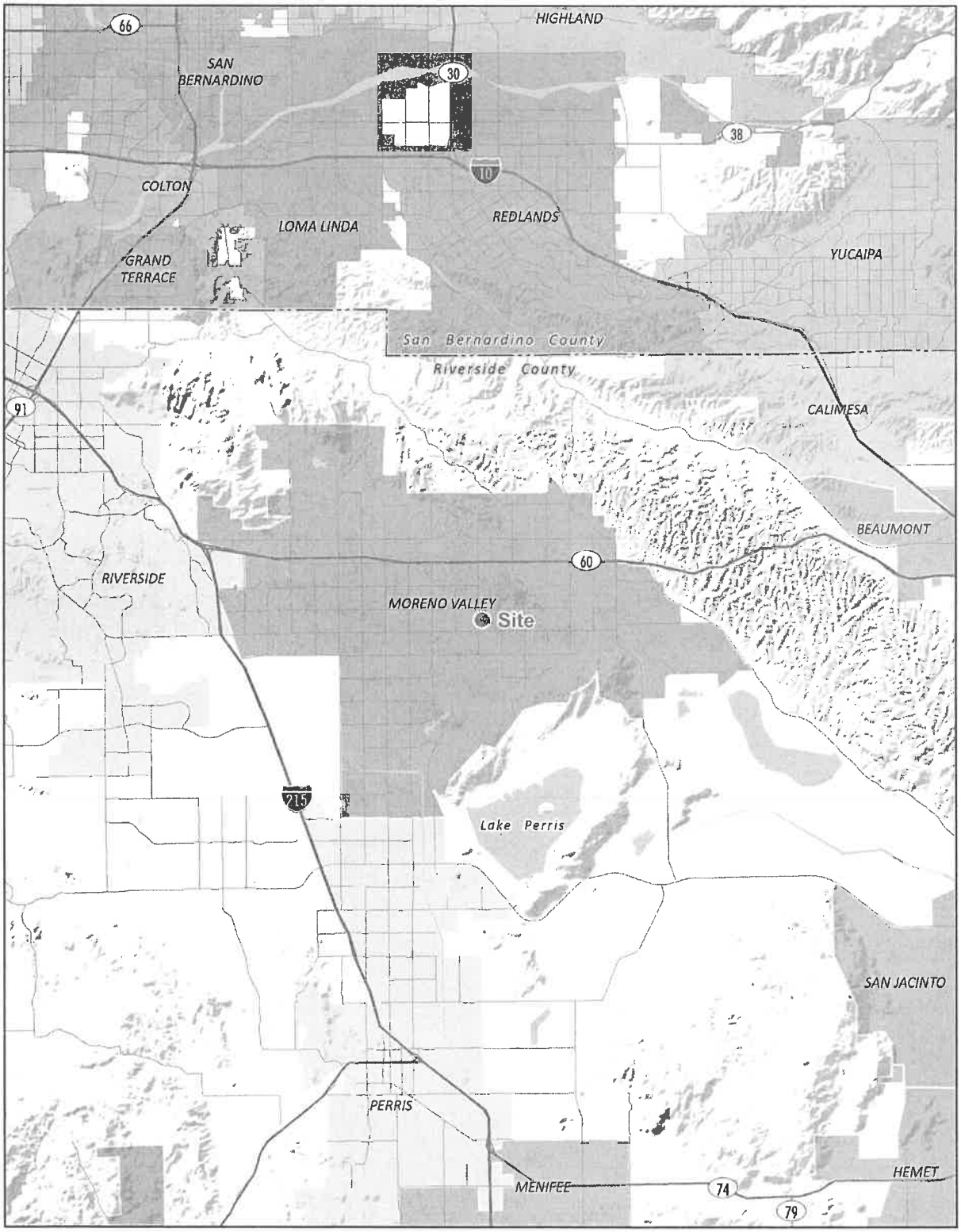
NO	DATE	BY	DESCRIPTION
1			REVISIONS

DRAWN:	CHECKED:
DATE: 01/13/20	SCALE: AS SHOWN
PROJECT NUMBER: 1911100	

OVERALL & SITE PLAN VERSION 2

DRAWING NUMBER: A1.1

Figure 1 - Regional Location

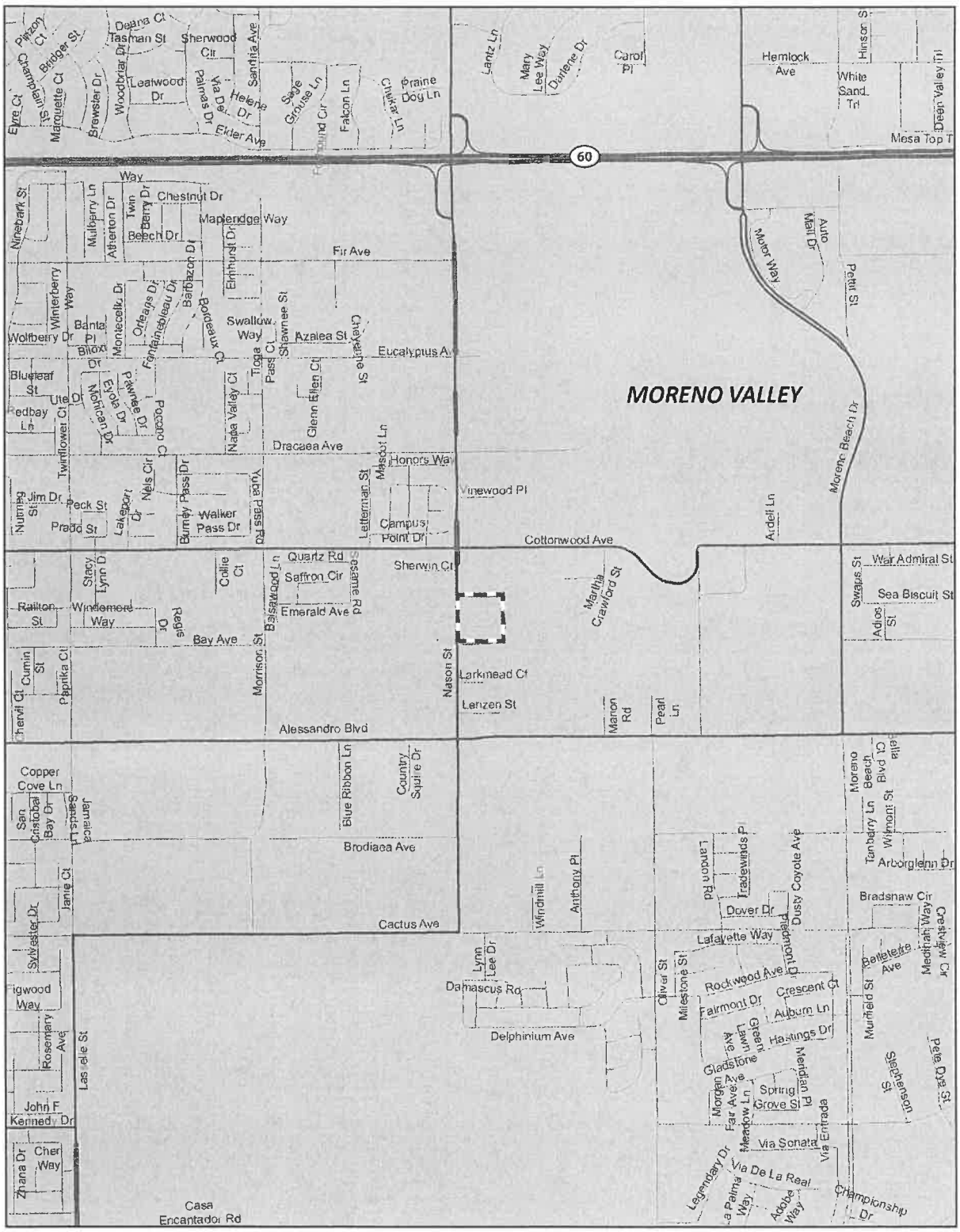


Note: Unincorporated county areas are shown in white.

0 3
Scale (Miles)

Source: ESRI, 2018

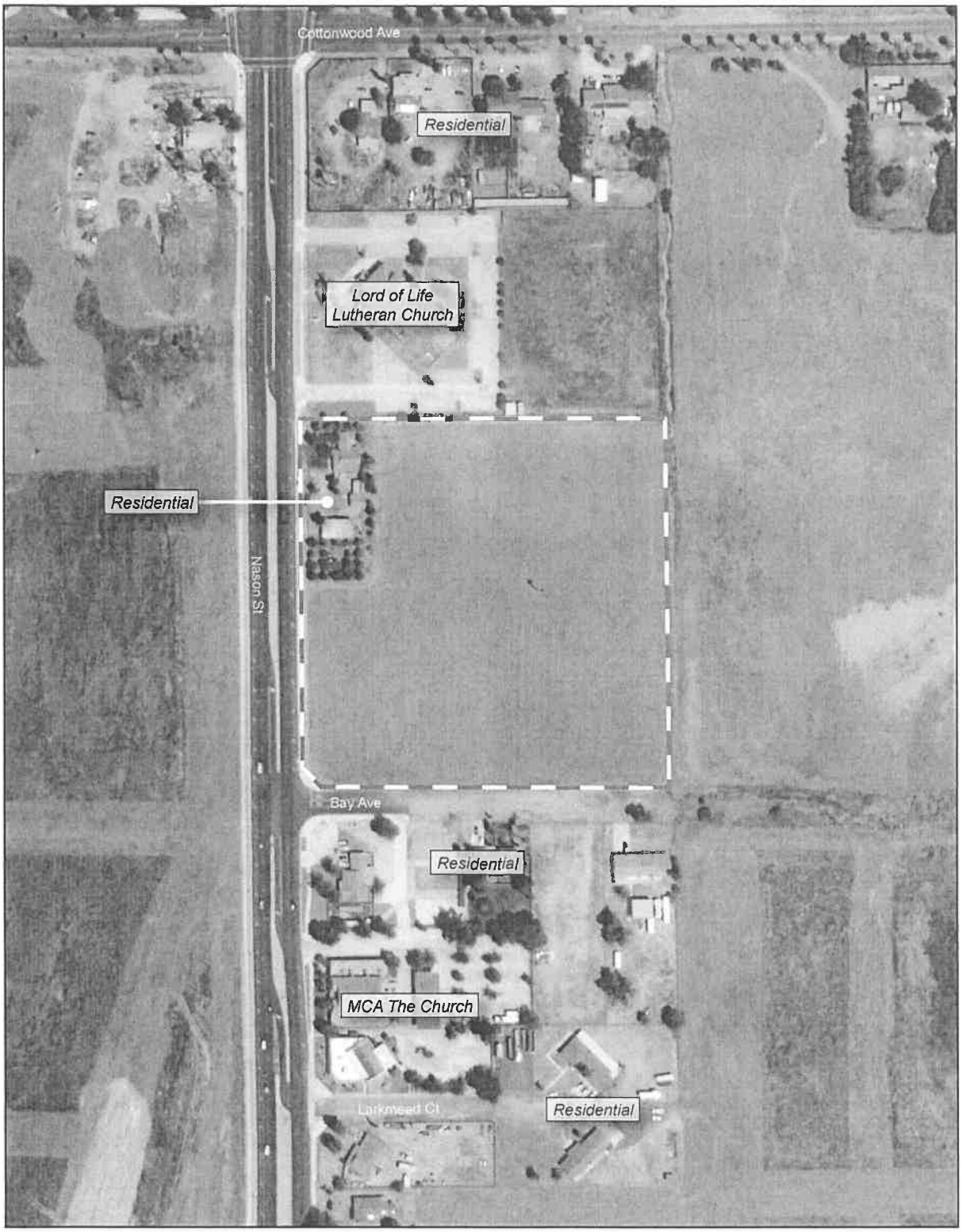
Figure 2 - Local Vicinity



Source: ESRI, 2018

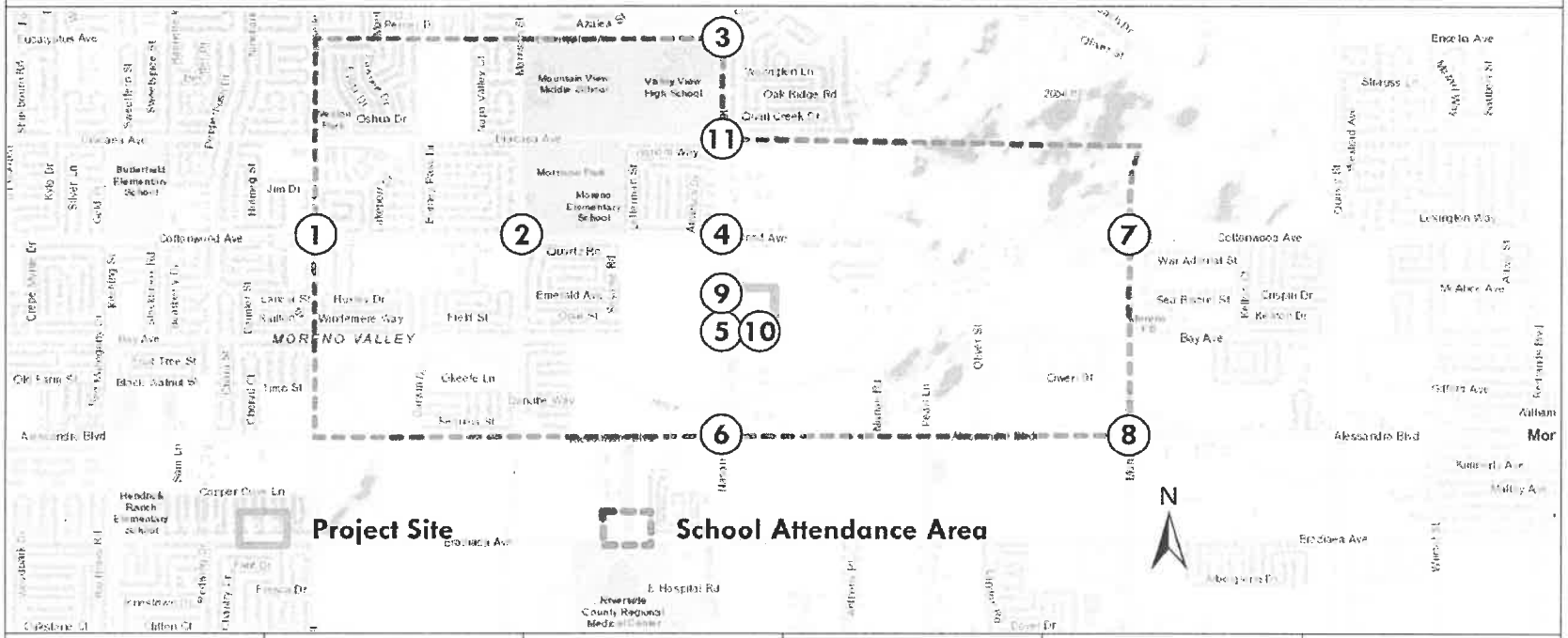
PlaceWorks

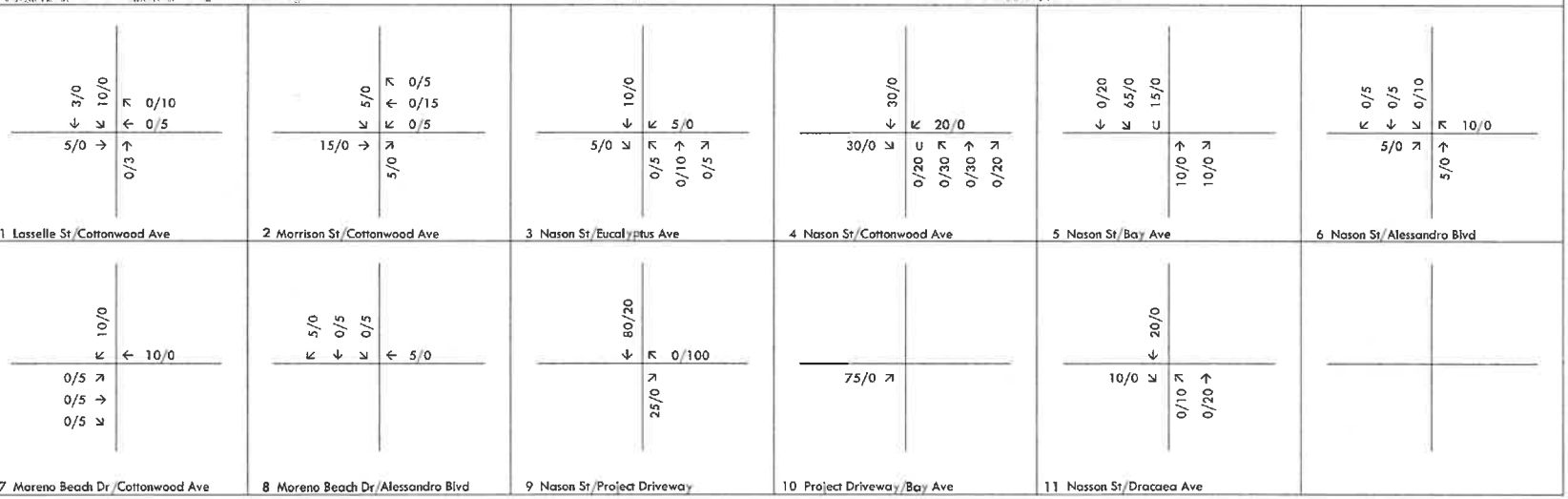
Figure 3 - Aerial Photograph



Source: ESRI, 2018

Figure 4: Project Distribution



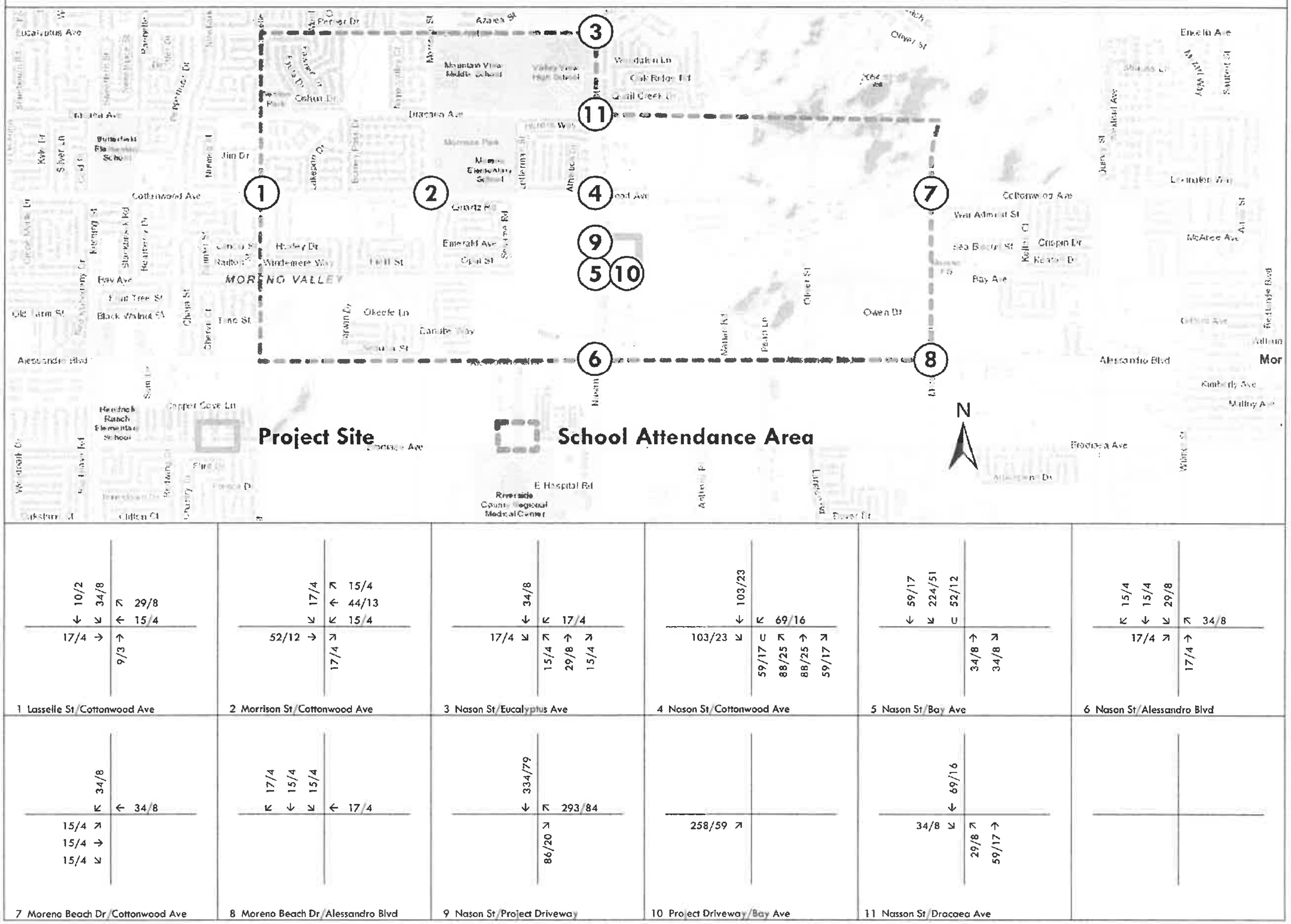


xx/yy = In/Out Distribution Percentage

① = Project Study Area Intersection

Moreno Valley Elementary School

Figure 5: Project Assignment



xx/yy = AM/PM Peak Hour Trip Assignment

① = Project Study Area Intersection

Moreno Valley Elementary School

Attachment 1 - Onsite Queuing Analysis

A queuing analysis for the on-site drop-off/pick-up area was prepared using the Stochastic Queuing Analysis methodology from Traffic Flow Fundamentals, by Adolf D. May[1]. Since this study has no limit on queue length, has a "first in, first out" (FIFO) service type, and a random distribution of arrival and service times, the queuing performance was calculated according to the Random Service Problem equations. These equations provide an estimate of the average number of vehicles in the queue at any time, based upon the number of vehicles that enter each hour and the length of time each vehicle is in the queue.

The mean arrival rate (λ) was determined to be 205 vehicles during the AM peak hour. This number includes the 258 vehicles using the Bay Avenue driveway shown in the trip assignment, and assumes a reduction for kindergarten parents, as Kindergarten starts earlier than grades 1-5 and would therefore not be included in the peak 15 minute volume. Because the vehicles would most likely arrive during a peak 15 -minute period, a PHF of 0.25 was applied to the inbound traffic volume resulting in an inbound hourly volume of 1,032 vehicles. The average completion time (T) is the time that it takes for a car to enter the site, drop-off a student and depart. This time would include approximately 30 seconds for vehicles to move up into the drop-off area (440 feet at 10 mph), plus 30 seconds for children to unload. An assumption of 1 minutes, or 0.167 hours, was used for the completion time (T).

The first step in the analysis is to determine the mean service rate (μ). The mean service rate (μ) is the number of vehicles that can pass through the queue in an hour, based on the mean arrival rate (λ) and completion time (T). The mean service rate (μ) was determined using the equation $\mu=(1/T)+\lambda$, and was found to be 1,092 vehicles per hour[2]. The calculation is shown below:

1. $\mu=(1/T)+\lambda$

   T (Average Completion Time) = 1 minute (0.0167 hours)

   λ (Mean Arrival Rate) = 1,032 vehicles/hour

   μ (Mean Service Rate) = To be calculated

   $\mu = (1/0.0167 \text{ hr}) + 1{,}032 \text{ veh/hr}$

   $\mu = 1{,}092 \text{ veh/hr}$

After determining the mean arrival and service rate, the ratio of the arrival rate to the service rate is used to calculate the Traffic Intensity (ρ) {$\rho = \lambda/\mu$}. The calculation is shown below:

2. $\rho = \lambda/\mu$

   λ (Peak Arrival Rate) = 1,032 vehicles/hour

   μ (Mean Service Rate) = 1,092 veh/hour

---

[1] Adolf D. May, *Traffic Flow Fundamentals* (Prentice-Hall, Inc., 1990).

[2] David G. Messerschmitt, *Reliability and Queuing*
http://www.eecs.berkeley.edu/~messer/netappc/Supplements/13-reliability.pdf

ρ (Traffic Intensity) = To be calculated

$\rho = 1{,}032/1{,}092$

$\rho = 0.945$

The Traffic Intensity is then used to calculate the average number of cars in the queue using the equation $E(n) = \rho/(1-\rho)$. The calculation is shown below:

3. $E(n) = \rho/(1-\rho)$

   ρ (Traffic Intensity) = 0.945

   E(n) (Cars in the Queue) = To be calculated

   $E(n) = 0.945/(1-0.945)$

   $E(n) = 17.2 \approx 18$ veh

Based upon these calculations, it was determined that an average of18 vehicles may be queued at any time during the morning drop-off. The project site plan includes space for approximately 20 vehicles in the drop-off area, with space for an additional 13 vehicles on-site. However, the 85th percentile queue is 33 vehicles, which is the total on-site capacity. This means that there would be a short period of time each morning (approximately 3 to 4 minutes) when vehicles would queue on Bay Street. The project site plan includes an eastbound queuing/left-turn lane at the project driveway that would extend to the back of the westbound left-turn lane at Bay Street. The westbound left-turn lane at Nason Street has not yet been designed, however it is anticipated that the eastbound left-turn lane at the project driveway could provide approximately 275 feet of queuing, or space for an additional 12 vehicles.

APPENDIX B – TRAFFIC COUNTS

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Moreno Valley
N/S: Lasselle Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 11_MRV_Lasselle_Cottonwood_AM
Site Code : 22119323
Start Date : 6/11/2019
Page No : 1

Groups Printed- Total Volume

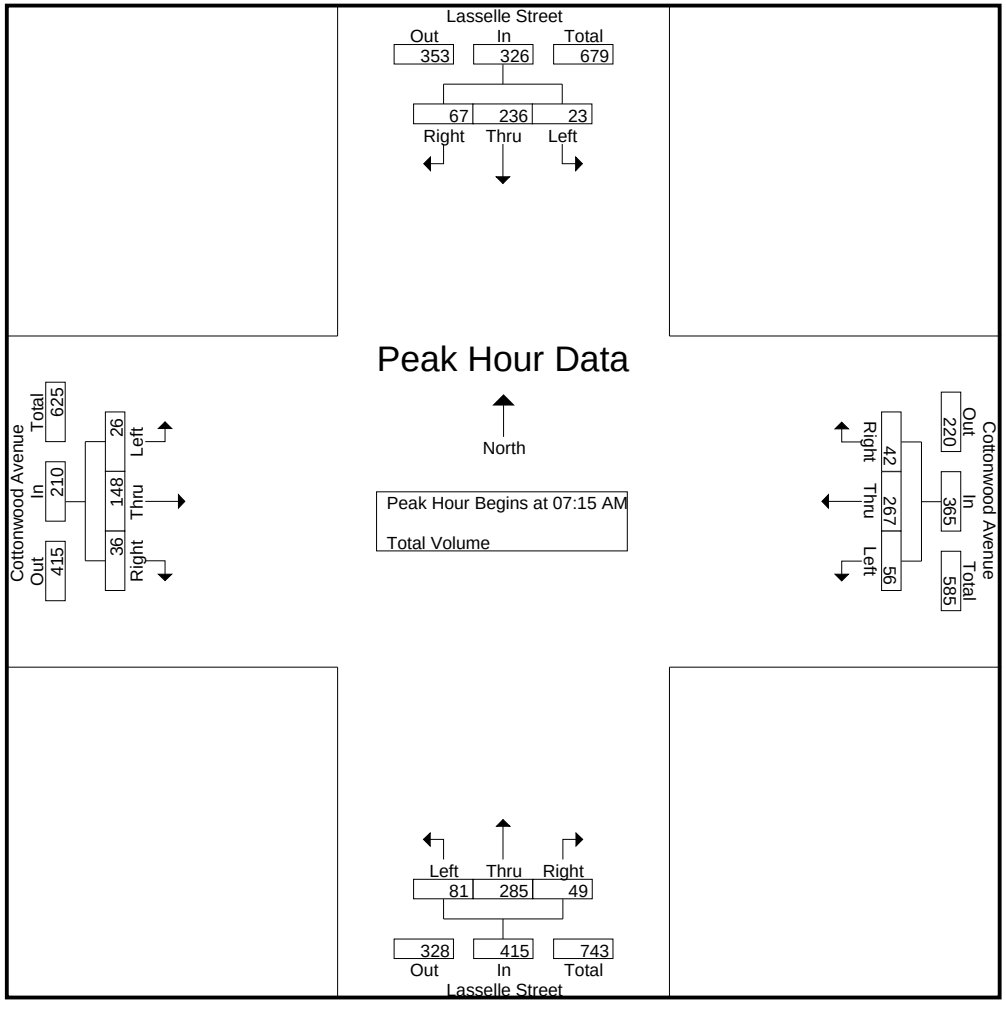
	Lasselle Street Southbound					Cottonwood Avenue Westbound					Lasselle Street Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	43	8	0	51	7	24	3	1	34	9	53	6	1	68	1	20	7	2	28	4	181	185
07:15 AM	4	48	8	2	60	7	42	4	1	53	23	59	3	1	85	7	16	5	2	28	6	226	232
07:30 AM	4	55	11	6	70	13	72	11	0	96	14	68	20	6	102	9	54	7	2	70	14	338	352
07:45 AM	9	61	25	11	95	18	81	18	4	117	23	91	12	4	126	6	48	13	6	67	25	405	430
Total	17	207	52	19	276	45	219	36	6	300	69	271	41	12	381	23	138	32	12	193	49	1150	1199
08:00 AM	6	72	23	9	101	18	72	9	0	99	21	67	14	4	102	4	30	11	2	45	15	347	362
08:15 AM	2	36	4	0	42	7	30	4	1	41	11	47	4	0	62	3	29	2	1	34	2	179	181
08:30 AM	2	36	6	0	44	5	33	2	1	40	13	46	4	1	63	4	14	6	3	24	5	171	176
08:45 AM	2	26	8	6	36	5	24	3	3	32	11	52	4	0	67	2	28	11	5	41	14	176	190
Total	12	170	41	15	223	35	159	18	5	212	56	212	26	5	294	13	101	30	11	144	36	873	909
Grand Total	29	377	93	34	499	80	378	54	11	512	125	483	67	17	675	36	239	62	23	337	85	2023	2108
Apprch %	5.8	75.6	18.6			15.6	73.8	10.5			18.5	71.6	9.9			10.7	70.9	18.4					
Total %	1.4	18.6	4.6		24.7	4	18.7	2.7		25.3	6.2	23.9	3.3		33.4	1.8	11.8	3.1		16.7	4	96	

	Lasselle Street Southbound				Cottonwood Avenue Westbound				Lasselle Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	48	8	60	7	42	4	53	**23**	59	3	85	7	16	5	28	226
07:30 AM	4	55	11	70	13	72	11	96	14	68	**20**	102	**9**	**54**	7	**70**	338
07:45 AM	**9**	61	**25**	95	**18**	**81**	**18**	**117**	23	**91**	12	**126**	6	48	**13**	67	**405**
08:00 AM	6	**72**	23	**101**	18	72	9	99	21	67	14	102	4	30	11	45	347
Total Volume	23	236	67	326	56	267	42	365	81	285	49	415	26	148	36	210	1316
% App. Total	7.1	72.4	20.6		15.3	73.2	11.5		19.5	68.7	11.8		12.4	70.5	17.1		
PHF	.639	.819	.670	.807	.778	.824	.583	.780	.880	.783	.613	.823	.722	.685	.692	.750	.812

Counts Unlimited
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City of Moreno Valley
N/S: Lasselle Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 11_MRV_Lasselle_Cottonwood_AM
Site Code : 22119323
Start Date : 6/11/2019
Page No : 2



Counts Unlimited
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(951) 268-6268

City of Moreno Valley
N/S: Lasselle Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 11_MRV_Lasselle_Cottonwood_AM
Site Code : 22119323
Start Date : 6/11/2019
Page No : 3

	Lasselle Street Southbound				Cottonwood Avenue Westbound				Lasselle Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:30 AM				
+0 mins.	4	48	8	60	7	42	4	53	**23**	59	3	85	**9**	**54**	7	**70**	
+15 mins.	4	55	11	70	13	72	11	96	14	68	**20**	102	6	48	**13**	67	
+30 mins.	**9**	61	**25**	95	**18**	**81**	**18**	**117**	23	**91**	12	**126**	4	30	11	45	
+45 mins.	6	**72**	23	**101**	18	72	9	99	21	67	14	102	3	29	2	34	
Total Volume	23	236	67	326	56	267	42	365	81	285	49	415	22	161	33	216	
% App. Total	7.1	72.4	20.6		15.3	73.2	11.5		19.5	68.7	11.8		10.2	74.5	15.3		
PHF	.639	.819	.670	.807	.778	.824	.583	.780	.880	.783	.613	.823	.611	.745	.635	.771	

Counts Unlimited
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City of Moreno Valley
N/S: Lasselle Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 11_MRV_Lasselle_Cottonwood_PM
Site Code : 22119323
Start Date : 6/11/2019
Page No : 1

Groups Printed- Total Volume

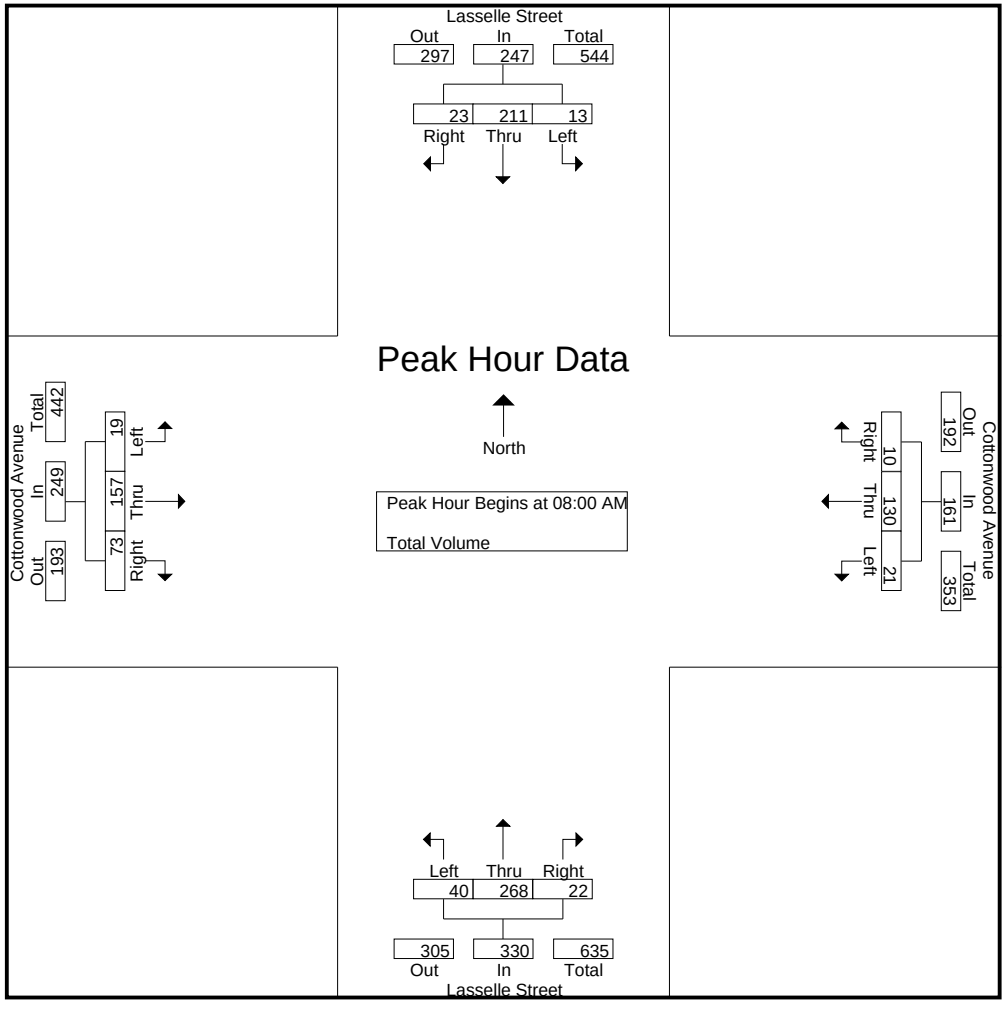
	Lasselle Street Southbound					Cottonwood Avenue Westbound					Lasselle Street Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	57	3	1	62	3	27	2	1	32	5	52	7	1	64	7	38	10	4	55	7	213	220
07:15 AM	3	56	6	0	65	10	24	3	1	37	12	71	3	0	86	7	33	14	2	54	3	242	245
07:30 AM	2	50	4	2	56	9	30	2	0	41	7	63	5	3	75	5	27	17	7	49	12	221	233
07:45 AM	0	34	3	1	37	5	25	2	0	32	6	72	8	2	86	6	30	11	6	47	9	202	211
Total	7	197	16	4	220	27	106	9	2	142	30	258	23	6	311	25	128	52	19	205	31	878	909
08:00 AM	2	44	7	3	53	7	30	2	2	39	7	76	6	2	89	3	38	20	5	61	12	242	254
08:15 AM	1	58	6	3	65	4	36	3	0	43	10	73	4	1	87	6	44	22	6	72	10	267	277
08:30 AM	4	55	7	3	66	6	22	5	2	33	12	65	7	2	84	6	34	17	3	57	10	240	250
08:45 AM	6	54	3	2	63	4	42	0	0	46	11	54	5	1	70	4	41	14	2	59	5	238	243
Total	13	211	23	11	247	21	130	10	4	161	40	268	22	6	330	19	157	73	16	249	37	987	1024
Grand Total	20	408	39	15	467	48	236	19	6	303	70	526	45	12	641	44	285	125	35	454	68	1865	1933
Apprch %	4.3	87.4	8.4			15.8	77.9	6.3			10.9	82.1	7			9.7	62.8	27.5					
Total %	1.1	21.9	2.1		25	2.6	12.7	1		16.2	3.8	28.2	2.4		34.4	2.4	15.3	6.7		24.3	3.5	96.5	

	Lasselle Street Southbound				Cottonwood Avenue Westbound				Lasselle Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	2	44	**7**	53	**7**	30	2	39	7	**76**	6	**89**	3	38	20	61	242
08:15 AM	1	**58**	6	65	4	36	3	43	10	73	4	87	**6**	**44**	**22**	**72**	**267**
08:30 AM	4	55	7	**66**	6	22	**5**	33	**12**	65	**7**	84	6	34	17	57	240
08:45 AM	**6**	54	3	63	4	**42**	0	**46**	11	54	5	70	4	41	14	59	238
Total Volume	13	211	23	247	21	130	10	161	40	268	22	330	19	157	73	249	987
% App. Total	5.3	85.4	9.3		13	80.7	6.2		12.1	81.2	6.7		7.6	63.1	29.3		
PHF	.542	.909	.821	.936	.750	.774	.500	.875	.833	.882	.786	.927	.792	.892	.830	.865	.924

Counts Unlimited
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City of Moreno Valley
N/S: Lasselle Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 11_MRV_Lasselle_Cottonwood_PM
Site Code : 22119323
Start Date : 6/11/2019
Page No : 2



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City of Moreno Valley
N/S: Lasselle Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 11_MRV_Lasselle_Cottonwood_PM
Site Code : 22119323
Start Date : 6/11/2019
Page No : 3

	Lasselle Street Southbound				Cottonwood Avenue Westbound				Lasselle Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	08:00 AM				08:00 AM				07:45 AM				08:00 AM				
+0 mins.	2	44	**7**	53	**7**	30	2	39	6	72	**8**	86	3	38	20	61	
+15 mins.	1	**58**	6	65	4	36	3	43	7	**76**	6	**89**	**6**	**44**	**22**	**72**	
+30 mins.	4	55	7	**66**	6	22	**5**	33	10	73	4	87	6	34	17	57	
+45 mins.	**6**	54	3	63	4	**42**	0	**46**	**12**	65	7	84	4	41	14	59	
Total Volume	13	211	23	247	21	130	10	161	35	286	25	346	19	157	73	249	
% App. Total	5.3	85.4	9.3		13	80.7	6.2		10.1	82.7	7.2		7.6	63.1	29.3		
PHF	.542	.909	.821	.936	.750	.774	.500	.875	.729	.941	.781	.972	.792	.892	.830	.865	

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 1

Groups Printed- Total Volume

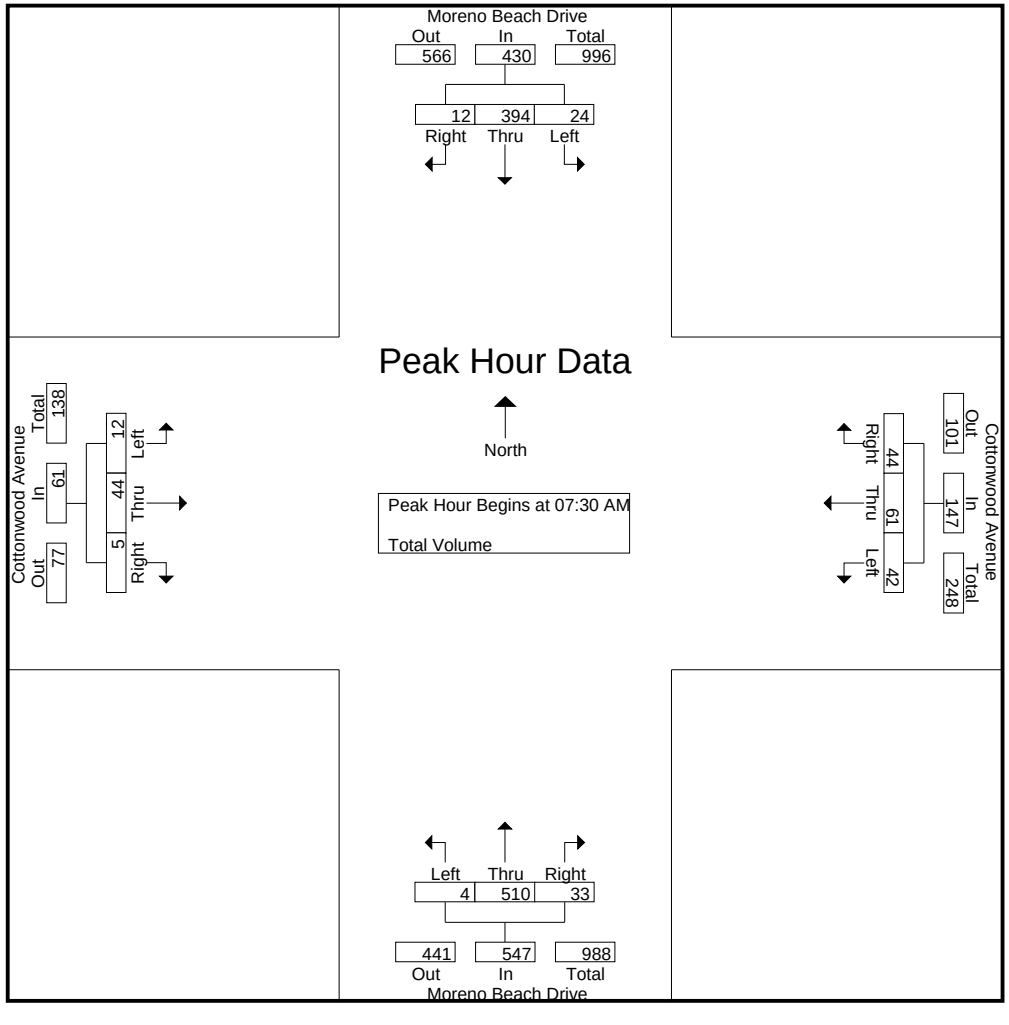
	Moreno Beach Drive Southbound					Cottonwood Avenue Westbound					Moreno Beach Drive Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	4	67	2	0	73	6	18	11	2	35	1	116	3	0	120	5	2	0	0	7	2	235	237
07:15 AM	5	81	1	0	87	15	11	9	5	35	1	103	4	2	108	4	7	2	2	13	9	243	252
07:30 AM	5	84	2	2	91	15	28	15	4	58	2	122	10	2	134	5	8	0	0	13	8	296	304
07:45 AM	3	106	3	1	112	14	21	13	1	48	1	161	8	2	170	5	14	1	0	20	4	350	354
Total	17	338	8	3	363	50	78	48	12	176	5	502	25	6	532	19	31	3	2	53	23	1124	1147
08:00 AM	10	111	5	2	126	4	5	9	4	18	0	110	10	0	120	1	15	2	1	18	7	282	289
08:15 AM	6	93	2	0	101	9	7	7	1	23	1	117	5	0	123	1	7	2	1	10	2	257	259
08:30 AM	5	75	5	0	85	4	4	7	3	15	1	90	7	0	98	2	5	0	0	7	3	205	208
08:45 AM	7	69	5	0	81	5	2	6	0	13	3	123	3	0	129	2	2	1	1	5	1	228	229
Total	28	348	17	2	393	22	18	29	8	69	5	440	25	0	470	6	29	5	3	40	13	972	985
Grand Total	45	686	25	5	756	72	96	77	20	245	10	942	50	6	1002	25	60	8	5	93	36	2096	2132
Apprch %	6	90.7	3.3			29.4	39.2	31.4			1	94	5			26.9	64.5	8.6					
Total %	2.1	32.7	1.2		36.1	3.4	4.6	3.7		11.7	0.5	44.9	2.4		47.8	1.2	2.9	0.4		4.4	1.7	98.3	

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	84	2	91	**15**	**28**	**15**	**58**	**2**	122	**10**	134	**5**	8	0	13	296
07:45 AM	3	106	3	112	14	21	13	48	1	**161**	8	**170**	5	14	1	**20**	**350**
08:00 AM	**10**	**111**	**5**	**126**	4	5	9	18	0	110	10	120	1	**15**	**2**	18	282
08:15 AM	6	93	2	101	9	7	7	23	1	117	5	123	1	7	2	10	257
Total Volume	24	394	12	430	42	61	44	147	4	510	33	547	12	44	5	61	1185
% App. Total	5.6	91.6	2.8		28.6	41.5	29.9		0.7	93.2	6		19.7	72.1	8.2		
PHF	.600	.887	.600	.853	.700	.545	.733	.634	.500	.792	.825	.804	.600	.733	.625	.763	.846

Counts Unlimited
PO Box 1178
Corona, CA 92878
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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 2



Counts Unlimited
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(951) 268-6268

City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
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File Name : 10_MRV_Moreno Beach_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 3

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:00 AM				07:30 AM				07:15 AM				
+0 mins.	5	84	2	91	6	18	11	35	**2**	122	**10**	134	4	7	**2**	13	
+15 mins.	3	106	3	112	**15**	11	9	35	1	**161**	8	**170**	**5**	8	0	13	
+30 mins.	**10**	**111**	**5**	**126**	15	**28**	**15**	**58**	0	110	10	120	5	14	1	**20**	
+45 mins.	6	93	2	101	14	21	13	48	1	117	5	123	1	**15**	2	18	
Total Volume	24	394	12	430	50	78	48	176	4	510	33	547	15	44	5	64	
% App. Total	5.6	91.6	2.8		28.4	44.3	27.3		0.7	93.2	6		23.4	68.8	7.8		
PHF	.600	.887	.600	.853	.833	.696	.800	.759	.500	.792	.825	.804	.750	.733	.625	.800	

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood PM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 1

Groups Printed- Total Volume

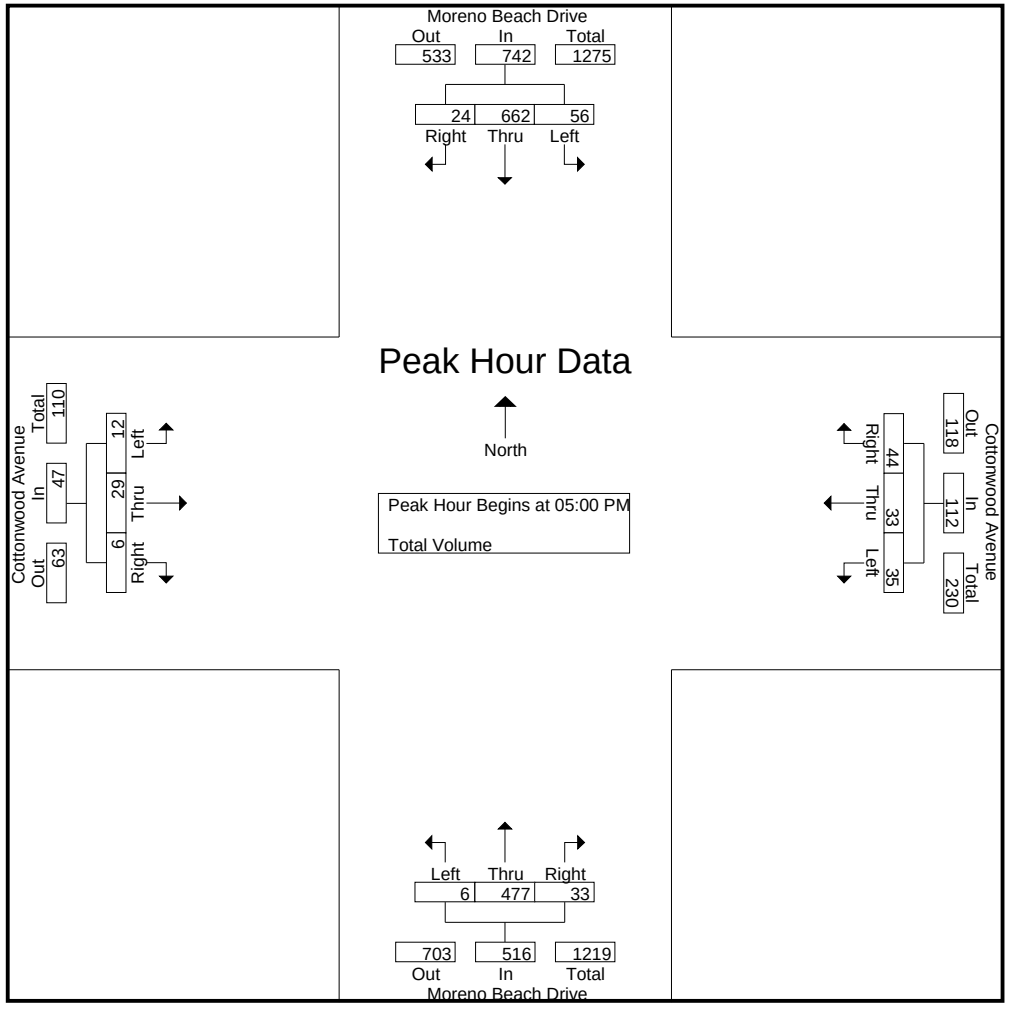
	Moreno Beach Drive Southbound					Cottonwood Avenue Westbound					Moreno Beach Drive Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	12	165	2	1	179	6	6	6	4	18	2	101	18	3	121	2	5	1	0	8	8	326	334
04:15 PM	13	194	7	0	214	8	8	17	8	33	1	108	10	1	119	5	6	0	0	11	9	377	386
04:30 PM	16	153	5	2	174	4	4	12	7	20	6	144	7	0	157	5	11	1	0	17	9	368	377
04:45 PM	13	159	6	1	178	4	4	8	4	16	0	118	8	0	126	3	3	1	1	7	6	327	333
Total	54	671	20	4	745	22	22	43	23	87	9	471	43	4	523	15	25	3	1	43	32	1398	1430
05:00 PM	13	160	8	1	181	10	8	10	7	28	2	111	10	1	123	1	6	2	2	9	11	341	352
05:15 PM	15	156	4	3	175	9	12	12	4	33	0	122	10	3	132	4	8	2	1	14	11	354	365
05:30 PM	9	181	5	0	195	10	6	12	5	28	3	109	4	1	116	5	8	1	0	14	6	353	359
05:45 PM	19	165	7	1	191	6	7	10	8	23	1	135	9	2	145	2	7	1	0	10	11	369	380
Total	56	662	24	5	742	35	33	44	24	112	6	477	33	7	516	12	29	6	3	47	39	1417	1456
Grand Total	110	1333	44	9	1487	57	55	87	47	199	15	948	76	11	1039	27	54	9	4	90	71	2815	2886
Apprch %	7.4	89.6	3			28.6	27.6	43.7			1.4	91.2	7.3			30	60	10					
Total %	3.9	47.4	1.6		52.8	2	2	3.1		7.1	0.5	33.7	2.7		36.9	1	1.9	0.3		3.2	2.5	97.5	

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	13	160	**8**	181	**10**	8	10	28	2	111	**10**	123	1	6	**2**	9	341
05:15 PM	15	156	4	175	9	**12**	**12**	**33**	0	122	10	132	4	**8**	2	**14**	354
05:30 PM	9	**181**	5	**195**	10	6	12	28	**3**	109	4	116	**5**	8	1	14	353
05:45 PM	**19**	165	7	191	6	7	10	23	1	**135**	9	**145**	2	7	1	10	**369**
Total Volume	56	662	24	742	35	33	44	112	6	477	33	516	12	29	6	47	1417
% App. Total	7.5	89.2	3.2		31.2	29.5	39.3		1.2	92.4	6.4		25.5	61.7	12.8		
PHF	.737	.914	.750	.951	.875	.688	.917	.848	.500	.883	.825	.890	.600	.906	.750	.839	.960

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood PM
Site Code : 22119323
Start Date : 5/2/2019
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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood PM
Site Code : 22119323
Start Date : 5/2/2019

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				05:00 PM				04:30 PM				04:30 PM				
+0 mins.	13	**194**	7	**214**	**10**	8	10	28	**6**	**144**	7	**157**	**5**	**11**	1	**17**	
+15 mins.	**16**	153	5	174	9	**12**	**12**	**33**	0	118	8	126	3	3	1	7	
+30 mins.	13	159	6	178	10	6	12	28	2	111	**10**	123	1	6	**2**	9	
+45 mins.	13	160	**8**	181	6	7	10	23	0	122	10	132	4	8	2	14	
Total Volume	55	666	26	747	35	33	44	112	8	495	35	538	13	28	6	47	
% App. Total	7.4	89.2	3.5		31.2	29.5	39.3		1.5	92	6.5		27.7	59.6	12.8		
PHF	.859	.858	.813	.873	.875	.688	.917	.848	.333	.859	.875	.857	.650	.636	.750	.691	

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City of Moreno Valley
N/S: Nason Street
E/W: Eucalyptus Avenue
Weather: Clear

File Name : 07_MRV_Nason_Eucalyptus AM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

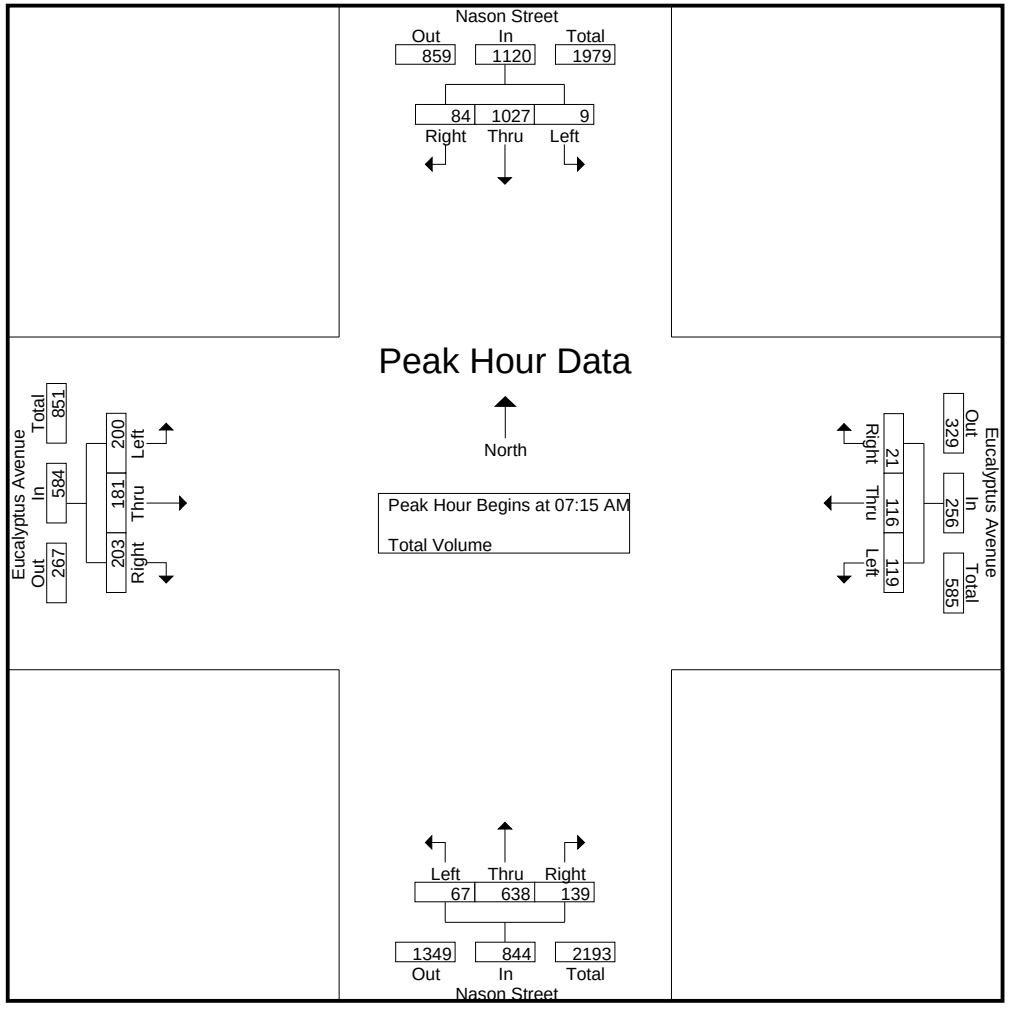
	Nason Street Southbound					Eucalyptus Avenue Westbound					Nason Street Northbound					Eucalyptus Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	191	10	5	201	23	19	5	3	47	3	132	22	8	157	18	17	12	9	47	25	452	477
07:15 AM	3	242	9	3	254	27	17	5	4	49	5	149	16	3	170	12	12	15	13	39	23	512	535
07:30 AM	2	295	32	16	329	34	30	6	2	70	17	158	28	6	203	57	25	50	20	132	44	734	778
07:45 AM	3	318	32	7	353	34	45	5	4	84	34	171	45	10	250	75	79	86	41	240	62	927	989
Total	8	1046	83	31	1137	118	111	21	13	250	59	610	111	27	780	162	133	163	83	458	154	2625	2779
08:00 AM	1	172	11	1	184	24	24	5	3	53	11	160	50	9	221	56	65	52	24	173	37	631	668
08:15 AM	2	154	14	7	170	15	24	3	2	42	8	118	38	7	164	8	22	12	10	42	26	418	444
08:30 AM	3	133	5	3	141	13	24	2	1	39	5	104	36	13	145	13	15	10	6	38	23	363	386
08:45 AM	3	115	6	3	124	16	15	2	0	33	5	114	34	17	153	11	21	7	4	39	24	349	373
Total	9	574	36	14	619	68	87	12	6	167	29	496	158	46	683	88	123	81	44	292	110	1761	1871
Grand Total	17	1620	119	45	1756	186	198	33	19	417	88	1106	269	73	1463	250	256	244	127	750	264	4386	4650
Apprch %	1	92.3	6.8			44.6	47.5	7.9			6	75.6	18.4			33.3	34.1	32.5					
Total %	0.4	36.9	2.7		40	4.2	4.5	0.8		9.5	2	25.2	6.1		33.4	5.7	5.8	5.6		17.1	5.7	94.3	

	Nason Street Southbound				Eucalyptus Avenue Westbound				Nason Street Northbound				Eucalyptus Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**3**	242	9	254	27	17	5	49	5	149	16	170	12	12	15	39	512
07:30 AM	2	295	**32**	329	**34**	30	**6**	70	17	158	28	203	57	25	50	132	734
07:45 AM	3	**318**	32	**353**	34	**45**	5	**84**	**34**	**171**	45	**250**	**75**	**79**	**86**	**240**	**927**
08:00 AM	1	172	11	184	24	24	5	53	11	160	**50**	221	56	65	52	173	631
Total Volume	9	1027	84	1120	119	116	21	256	67	638	139	844	200	181	203	584	2804
% App. Total	0.8	91.7	7.5		46.5	45.3	8.2		7.9	75.6	16.5		34.2	31	34.8		
PHF	.750	.807	.656	.793	.875	.644	.875	.762	.493	.933	.695	.844	.667	.573	.590	.608	.756

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City of Moreno Valley
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E/W: Eucalyptus Avenue
Weather: Clear

File Name : 07_MRV_Nason_Eucalyptus AM
Site Code : 22119323
Start Date : 5/2/2019
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City of Moreno Valley
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File Name : 07_MRV_Nason_Eucalyptus AM
Site Code : 22119323
Start Date : 5/2/2019

	Nason Street Southbound				Eucalyptus Avenue Westbound				Nason Street Northbound				Eucalyptus Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:15 AM				07:15 AM				07:30 AM				
+0 mins.	0	191	10	201	27	17	5	49	5	149	16	170	57	25	50	132	
+15 mins.	**3**	242	9	254	**34**	30	**6**	70	17	158	28	203	**75**	**79**	**86**	**240**	
+30 mins.	2	295	**32**	329	34	**45**	5	**84**	**34**	**171**	45	**250**	56	65	52	173	
+45 mins.	3	**318**	32	**353**	24	24	5	53	11	160	**50**	221	8	22	12	42	
Total Volume	8	1046	83	1137	119	116	21	256	67	638	139	844	196	191	200	587	
% App. Total	0.7	92	7.3		46.5	45.3	8.2		7.9	75.6	16.5		33.4	32.5	34.1		
PHF	.667	.822	.648	.805	.875	.644	.875	.762	.493	.933	.695	.844	.653	.604	.581	.611	

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City of Moreno Valley
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File Name : 07_MRV_Nason_Eucalyptus PM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

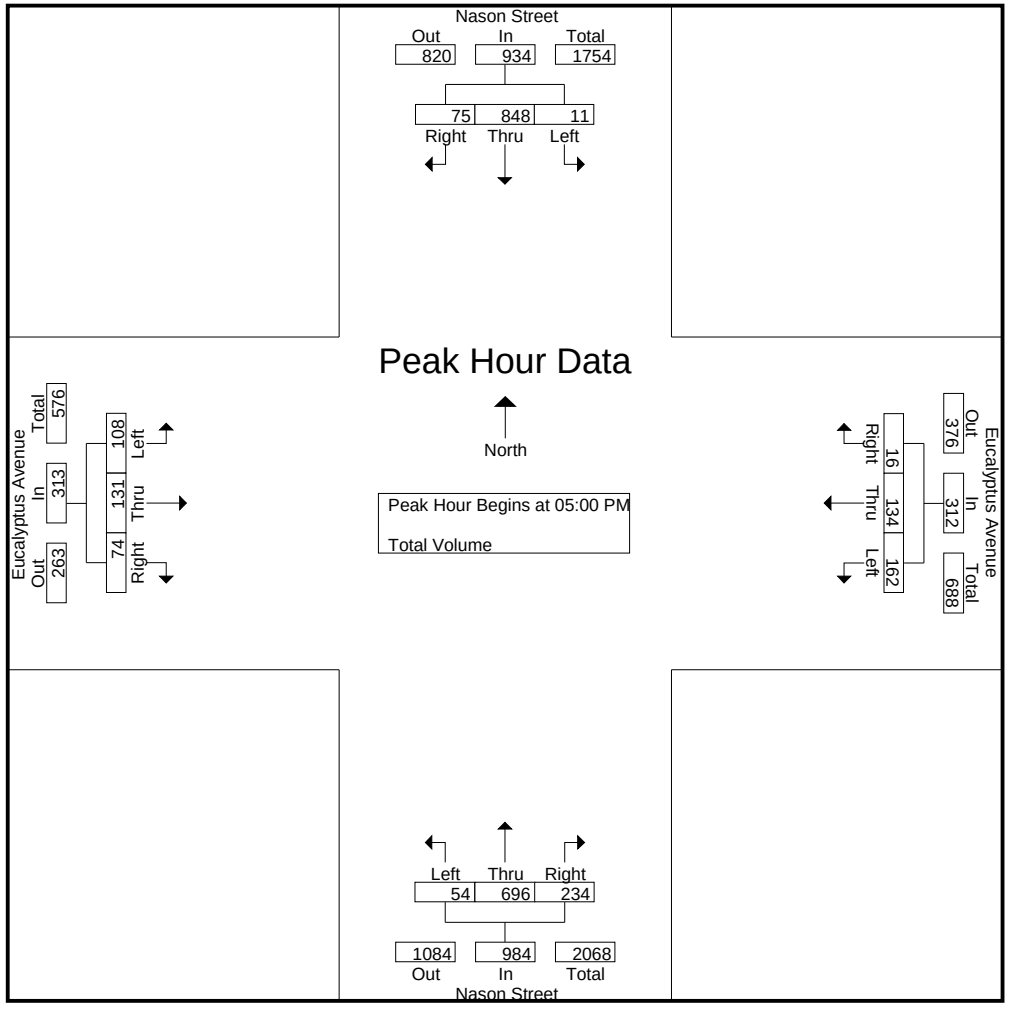
	Nason Street Southbound					Eucalyptus Avenue Westbound					Nason Street Northbound					Eucalyptus Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	3	178	13	2	194	28	36	1	1	65	6	196	58	24	260	21	39	18	10	78	37	597	634
04:15 PM	5	198	17	5	220	46	36	2	1	84	10	199	70	29	279	16	24	16	11	56	46	639	685
04:30 PM	1	201	23	7	225	35	33	1	1	69	15	217	49	14	281	18	34	10	9	62	31	637	668
04:45 PM	4	181	21	6	206	40	40	4	1	84	10	171	42	9	223	13	32	14	8	59	24	572	596
Total	13	758	74	20	845	149	145	8	4	302	41	783	219	76	1043	68	129	58	38	255	138	2445	2583
05:00 PM	2	198	15	5	215	34	42	4	2	80	7	178	59	8	244	13	27	13	11	53	26	592	618
05:15 PM	3	211	18	7	232	36	28	3	2	67	17	215	61	17	293	45	35	25	13	105	39	697	736
05:30 PM	5	216	22	5	243	46	34	5	3	85	20	149	55	18	224	28	28	21	12	77	38	629	667
05:45 PM	1	223	20	6	244	46	30	4	2	80	10	154	59	24	223	22	41	15	11	78	43	625	668
Total	11	848	75	23	934	162	134	16	9	312	54	696	234	67	984	108	131	74	47	313	146	2543	2689
Grand Total	24	1606	149	43	1779	311	279	24	13	614	95	1479	453	143	2027	176	260	132	85	568	284	4988	5272
Apprch %	1.3	90.3	8.4			50.7	45.4	3.9			4.7	73	22.3			31	45.8	23.2					
Total %	0.5	32.2	3		35.7	6.2	5.6	0.5		12.3	1.9	29.7	9.1		40.6	3.5	5.2	2.6		11.4	5.4	94.6	

	Nason Street Southbound				Eucalyptus Avenue Westbound				Nason Street Northbound				Eucalyptus Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	2	198	15	215	34	**42**	4	80	7	178	59	244	13	27	13	53	592
05:15 PM	3	211	18	232	36	28	3	67	17	**215**	**61**	**293**	**45**	35	**25**	**105**	**697**
05:30 PM	**5**	216	**22**	243	**46**	34	**5**	**85**	**20**	149	55	224	28	28	21	77	629
05:45 PM	1	**223**	20	**244**	46	30	4	80	10	154	59	223	22	**41**	15	78	625
Total Volume	11	848	75	934	162	134	16	312	54	696	234	984	108	131	74	313	2543
% App. Total	1.2	90.8	8		51.9	42.9	5.1		5.5	70.7	23.8		34.5	41.9	23.6		
PHF	.550	.951	.852	.957	.880	.798	.800	.918	.675	.809	.959	.840	.600	.799	.740	.745	.912

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File Name : 07_MRV_Nason_Eucalyptus PM
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Start Date : 5/2/2019
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File Name : 07_MRV_Nason_Eucalyptus PM
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Start Date : 5/2/2019

	Nason Street Southbound				Eucalyptus Avenue Westbound				Nason Street Northbound				Eucalyptus Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				04:15 PM				04:00 PM				05:00 PM				
+0 mins.	2	198	15	215	**46**	36	2	**84**	6	196	58	260	13	27	13	53	
+15 mins.	3	211	18	232	35	33	1	69	10	199	**70**	279	**45**	35	**25**	**105**	
+30 mins.	**5**	216	**22**	243	40	40	**4**	84	**15**	**217**	49	**281**	28	28	21	77	
+45 mins.	1	**223**	20	**244**	34	**42**	4	80	10	171	42	223	22	**41**	15	78	
Total Volume	11	848	75	934	155	151	11	317	41	783	219	1043	108	131	74	313	
% App. Total	1.2	90.8	8		48.9	47.6	3.5		3.9	75.1	21		34.5	41.9	23.6		
PHF	.550	.951	.852	.957	.842	.899	.688	.943	.683	.902	.782	.928	.600	.799	.740	.745	

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City of Moreno Valley
N/S: Nason Street
E/W: Cottonwood Avenue
Weather: Clear

File Name : 06_MRV_Nason_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

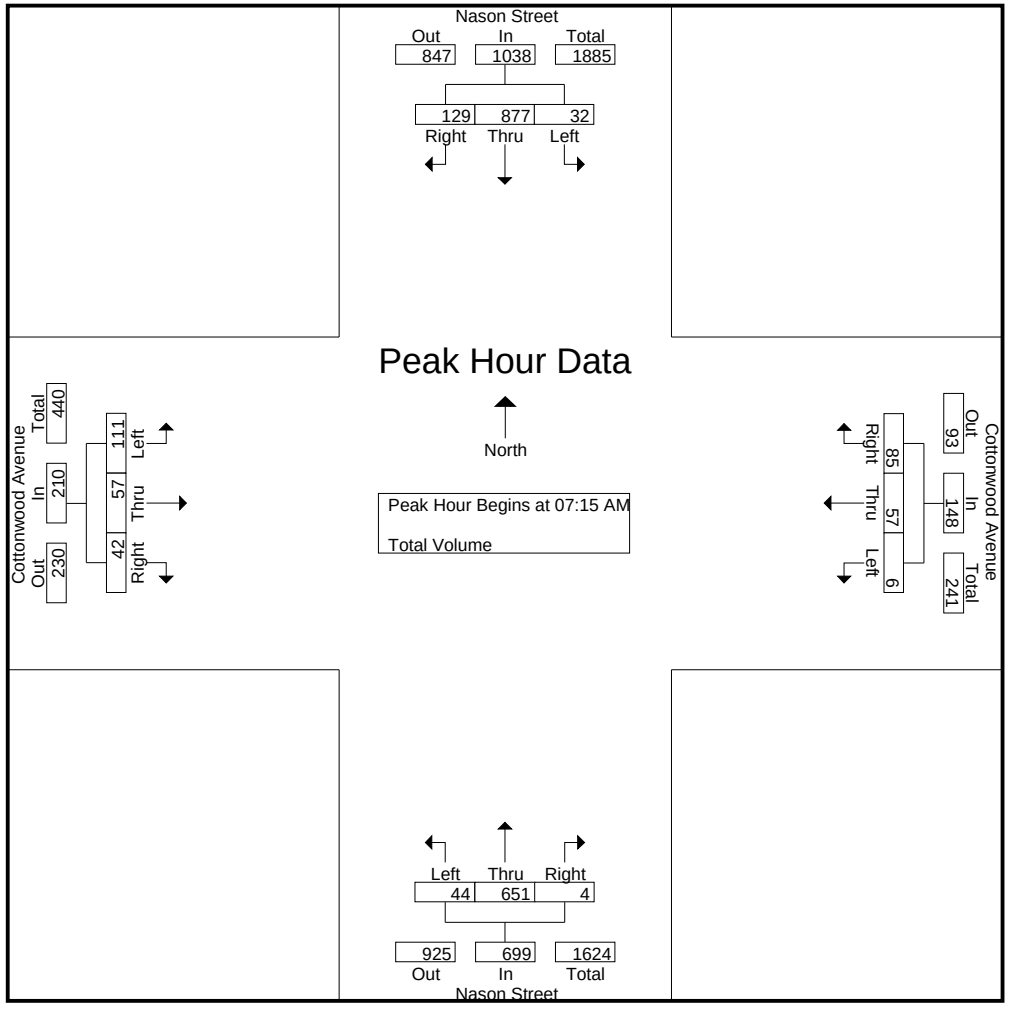
	Nason Street Southbound					Cottonwood Avenue Westbound					Nason Street Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	168	17	4	188	0	7	12	6	19	2	116	1	0	119	13	6	6	6	25	16	351	367
07:15 AM	4	204	15	4	223	3	10	15	10	28	6	150	1	0	157	19	8	3	0	30	14	438	452
07:30 AM	6	226	31	5	263	1	22	30	18	53	9	159	0	0	168	26	12	11	5	49	28	533	561
07:45 AM	11	267	45	4	323	1	16	30	15	47	16	193	3	0	212	33	16	15	4	64	23	646	669
Total	24	865	108	17	997	5	55	87	49	147	33	618	5	0	656	91	42	35	15	168	81	1968	2049
08:00 AM	11	180	38	5	229	1	9	10	9	20	13	149	0	0	162	33	21	13	6	67	20	478	498
08:15 AM	5	145	11	3	161	2	10	2	1	14	12	139	0	0	151	11	5	4	2	20	6	346	352
08:30 AM	4	141	9	0	154	0	7	7	7	14	3	110	1	1	114	14	5	6	4	25	12	307	319
08:45 AM	1	121	11	1	133	0	8	4	3	12	11	126	0	0	137	17	6	3	2	26	6	308	314
Total	21	587	69	9	677	3	34	23	20	60	39	524	1	1	564	75	37	26	14	138	44	1439	1483
Grand Total	45	1452	177	26	1674	8	89	110	69	207	72	1142	6	1	1220	166	79	61	29	306	125	3407	3532
Apprch %	2.7	86.7	10.6			3.9	43	53.1			5.9	93.6	0.5			54.2	25.8	19.9					
Total %	1.3	42.6	5.2		49.1	0.2	2.6	3.2		6.1	2.1	33.5	0.2		35.8	4.9	2.3	1.8		9	3.5	96.5	

	Nason Street Southbound				Cottonwood Avenue Westbound				Nason Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	204	15	223	**3**	10	15	28	6	150	1	157	19	8	3	30	438
07:30 AM	6	226	31	263	1	**22**	**30**	**53**	9	159	0	168	26	12	11	49	533
07:45 AM	**11**	**267**	**45**	**323**	1	16	30	47	**16**	**193**	**3**	**212**	**33**	16	**15**	64	**646**
08:00 AM	11	180	38	229	1	9	10	20	13	149	0	162	33	**21**	13	**67**	478
Total Volume	32	877	129	1038	6	57	85	148	44	651	4	699	111	57	42	210	2095
% App. Total	3.1	84.5	12.4		4.1	38.5	57.4		6.3	93.1	0.6		52.9	27.1	20		
PHF	.727	.821	.717	.803	.500	.648	.708	.698	.688	.843	.333	.824	.841	.679	.700	.784	.811

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File Name : 06_MRV_Nason_Cottonwood AM
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File Name : 06_MRV_Nason_Cottonwood AM
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Start Date : 5/2/2019

	Nason Street Southbound				Cottonwood Avenue Westbound				Nason Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	4	204	15	223	**3**	10	15	28	6	150	1	157	19	8	3	30	
+15 mins.	6	226	31	263	1	**22**	**30**	**53**	9	159	0	168	26	12	11	49	
+30 mins.	**11**	**267**	**45**	**323**	1	16	30	47	**16**	**193**	**3**	**212**	**33**	16	**15**	64	
+45 mins.	11	180	38	229	1	9	10	20	13	149	0	162	33	**21**	13	**67**	
Total Volume	32	877	129	1038	6	57	85	148	44	651	4	699	111	57	42	210	
% App. Total	3.1	84.5	12.4		4.1	38.5	57.4		6.3	93.1	0.6		52.9	27.1	20		
PHF	.727	.821	.717	.803	.500	.648	.708	.698	.688	.843	.333	.824	.841	.679	.700	.784	

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City of Moreno Valley
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File Name : 06_MRV_Nason_Cottonwood PM
Site Code : 22119323
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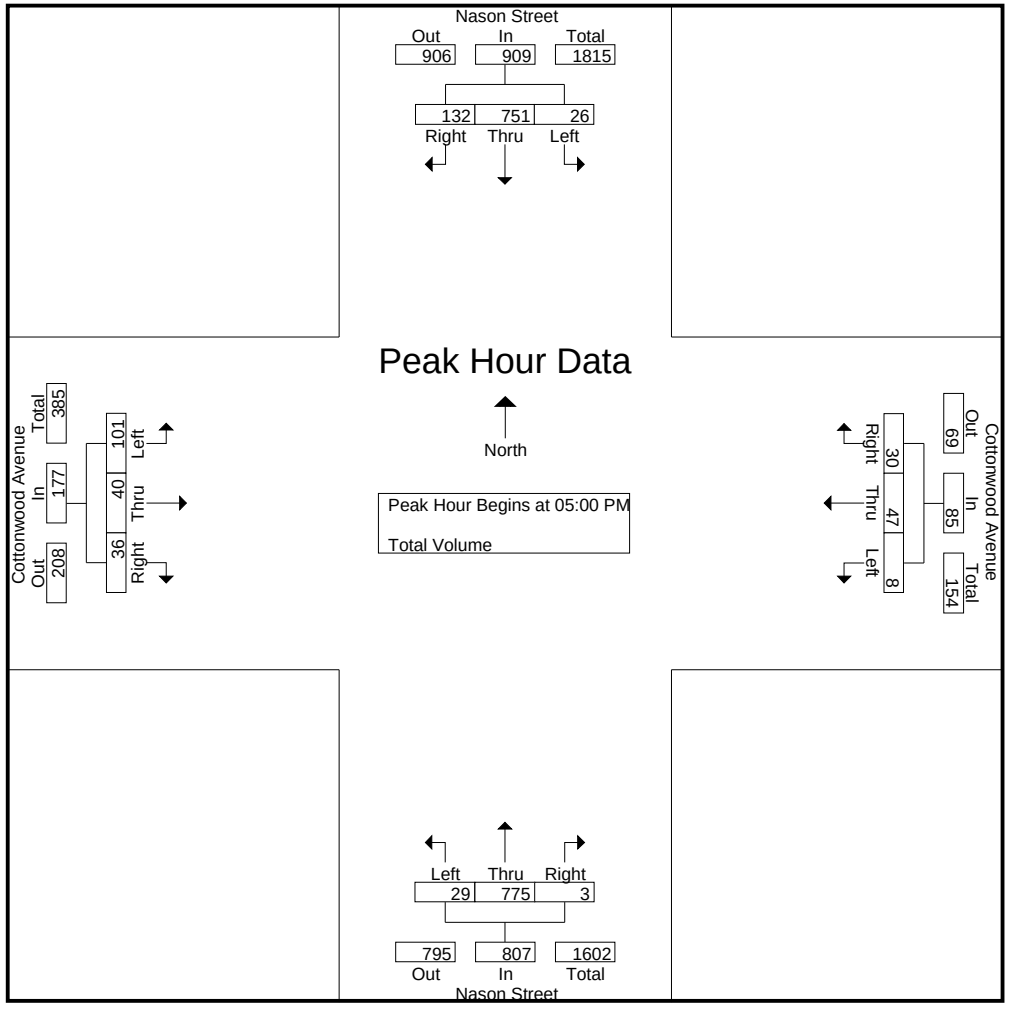
	Nason Street Southbound					Cottonwood Avenue Westbound					Nason Street Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	6	160	29	6	195	0	5	8	8	13	6	198	0	0	204	31	9	7	6	47	20	459	479
04:15 PM	5	187	38	2	230	0	16	5	1	21	12	209	1	0	222	29	12	7	2	48	5	521	526
04:30 PM	10	189	26	4	225	0	12	8	2	20	2	239	3	1	244	31	15	8	1	54	8	543	551
04:45 PM	4	167	25	1	196	1	6	2	1	9	7	173	1	0	181	22	4	7	4	33	6	419	425
Total	25	703	118	13	846	1	39	23	12	63	27	819	5	1	851	113	40	29	13	182	39	1942	1981
05:00 PM	6	149	29	5	184	2	23	4	1	29	8	216	1	0	225	34	11	11	5	56	11	494	505
05:15 PM	6	180	30	4	216	2	8	12	8	22	10	201	0	0	211	24	12	6	3	42	15	491	506
05:30 PM	6	223	34	7	263	0	8	9	7	17	4	170	0	0	174	21	13	11	4	45	18	499	517
05:45 PM	8	199	39	3	246	4	8	5	5	17	7	188	2	0	197	22	4	8	4	34	12	494	506
Total	26	751	132	19	909	8	47	30	21	85	29	775	3	0	807	101	40	36	16	177	56	1978	2034
Grand Total	51	1454	250	32	1755	9	86	53	33	148	56	1594	8	1	1658	214	80	65	29	359	95	3920	4015
Apprch %	2.9	82.8	14.2			6.1	58.1	35.8			3.4	96.1	0.5			59.6	22.3	18.1					
Total %	1.3	37.1	6.4		44.8	0.2	2.2	1.4		3.8	1.4	40.7	0.2		42.3	5.5	2	1.7		9.2	2.4	97.6	

	Nason Street Southbound				Cottonwood Avenue Westbound				Nason Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	6	149	29	184	2	**23**	4	**29**	8	**216**	1	**225**	**34**	11	**11**	**56**	494
05:15 PM	6	180	30	216	2	8	**12**	22	**10**	201	0	211	24	12	6	42	491
05:30 PM	6	**223**	34	**263**	0	8	9	17	4	170	0	174	21	**13**	11	45	**499**
05:45 PM	**8**	199	**39**	246	**4**	8	5	17	7	188	**2**	197	22	4	8	34	494
Total Volume	26	751	132	909	8	47	30	85	29	775	3	807	101	40	36	177	1978
% App. Total	2.9	82.6	14.5		9.4	55.3	35.3		3.6	96	0.4		57.1	22.6	20.3		
PHF	.813	.842	.846	.864	.500	.511	.625	.733	.725	.897	.375	.897	.743	.769	.818	.790	.991

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Weather: Clear

File Name : 06_MRV_Nason_Cottonwood PM
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	Nason Street Southbound				Cottonwood Avenue Westbound				Nason Street Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				04:15 PM				04:15 PM				
+0 mins.	6	149	29	184	2	**23**	4	**29**	**12**	209	1	222	29	12	7	48	
+15 mins.	6	180	30	216	2	8	**12**	22	2	**239**	**3**	**244**	31	**15**	8	54	
+30 mins.	6	**223**	34	**263**	0	8	9	17	7	173	1	181	22	4	7	33	
+45 mins.	**8**	199	**39**	246	**4**	8	5	17	8	216	1	225	**34**	11	**11**	**56**	
Total Volume	26	751	132	909	8	47	30	85	29	837	6	872	116	42	33	191	
% App. Total	2.9	82.6	14.5		9.4	55.3	35.3		3.3	96	0.7		60.7	22	17.3		
PHF	.813	.842	.846	.864	.500	.511	.625	.733	.604	.876	.500	.893	.853	.700	.750	.853	

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City of Moreno Valley
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E/W: Bay Avenue
Weather: Clear

File Name : 03_MRV_Nason_Bay AM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

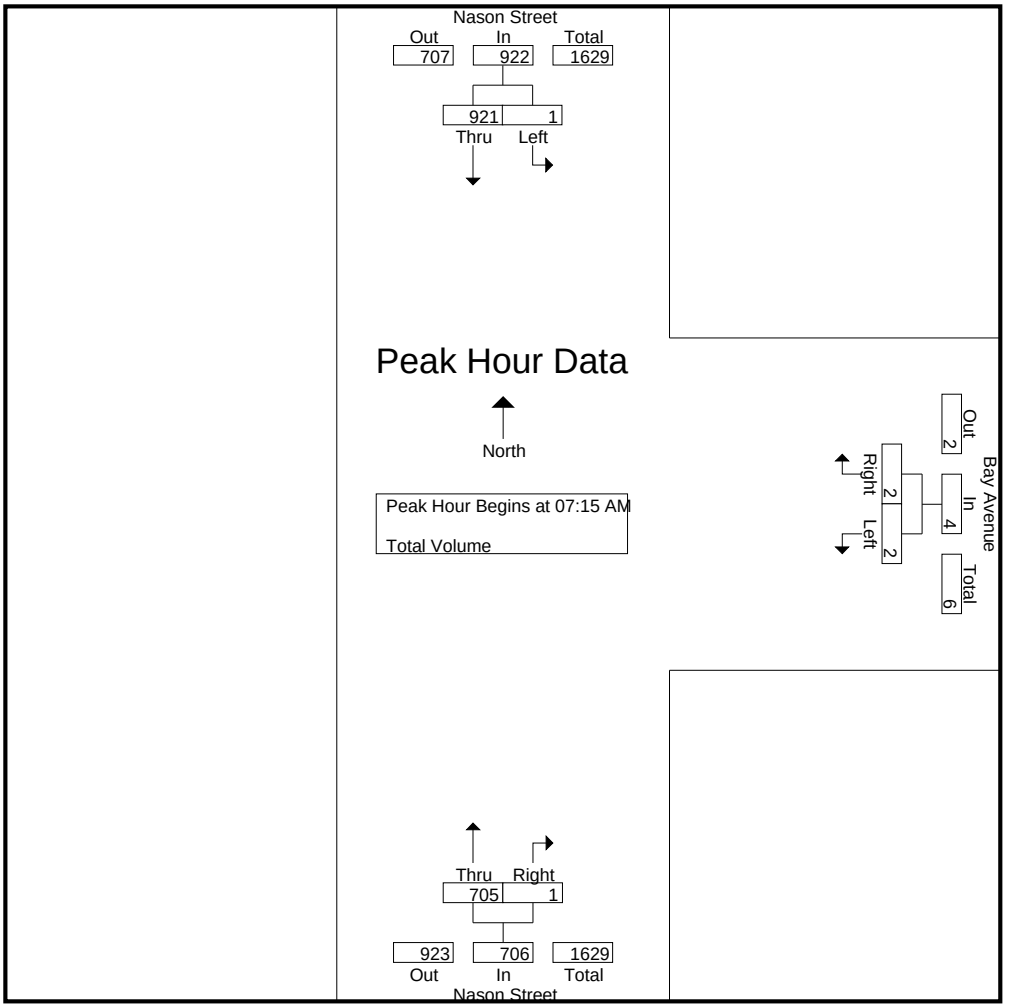
	Nason Street Southbound			Bay Avenue Westbound			Nason Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	173	173	0	0	0	116	0	116	289
07:15 AM	0	202	202	1	0	1	156	0	156	359
07:30 AM	0	250	250	0	1	1	188	1	189	440
07:45 AM	0	281	281	0	0	0	204	0	204	485
Total	0	906	906	1	1	2	664	1	665	1573
08:00 AM	1	188	189	1	1	2	157	0	157	348
08:15 AM	2	152	154	0	0	0	148	0	148	302
08:30 AM	0	141	141	0	0	0	112	0	112	253
08:45 AM	0	117	117	0	1	1	139	1	140	258
Total	3	598	601	1	2	3	556	1	557	1161
Grand Total	3	1504	1507	2	3	5	1220	2	1222	2734
Apprch %	0.2	99.8		40	60		99.8	0.2		
Total %	0.1	55	55.1	0.1	0.1	0.2	44.6	0.1	44.7	

	Nason Street Southbound			Bay Avenue Westbound			Nason Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	202	202	**1**	0	1	156	0	156	359
07:30 AM	0	250	250	0	**1**	1	188	**1**	189	440
07:45 AM	0	**281**	**281**	0	0	0	**204**	0	**204**	**485**
08:00 AM	**1**	188	189	1	1	**2**	157	0	157	348
Total Volume	1	921	922	2	2	4	705	1	706	1632
% App. Total	0.1	99.9		50	50		99.9	0.1		
PHF	.250	.819	.820	.500	.500	.500	.864	.250	.865	.841

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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	202	202	**1**	0	1	156	0	156
+15 mins.	0	250	250	0	**1**	1	188	**1**	189
+30 mins.	0	**281**	**281**	0	0	0	**204**	0	**204**
+45 mins.	**1**	188	189	1	1	**2**	157	0	157
Total Volume	1	921	922	2	2	4	705	1	706
% App. Total	0.1	99.9		50	50		99.9	0.1	
PHF	.250	.819	.820	.500	.500	.500	.864	.250	.865

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Groups Printed- Total Volume

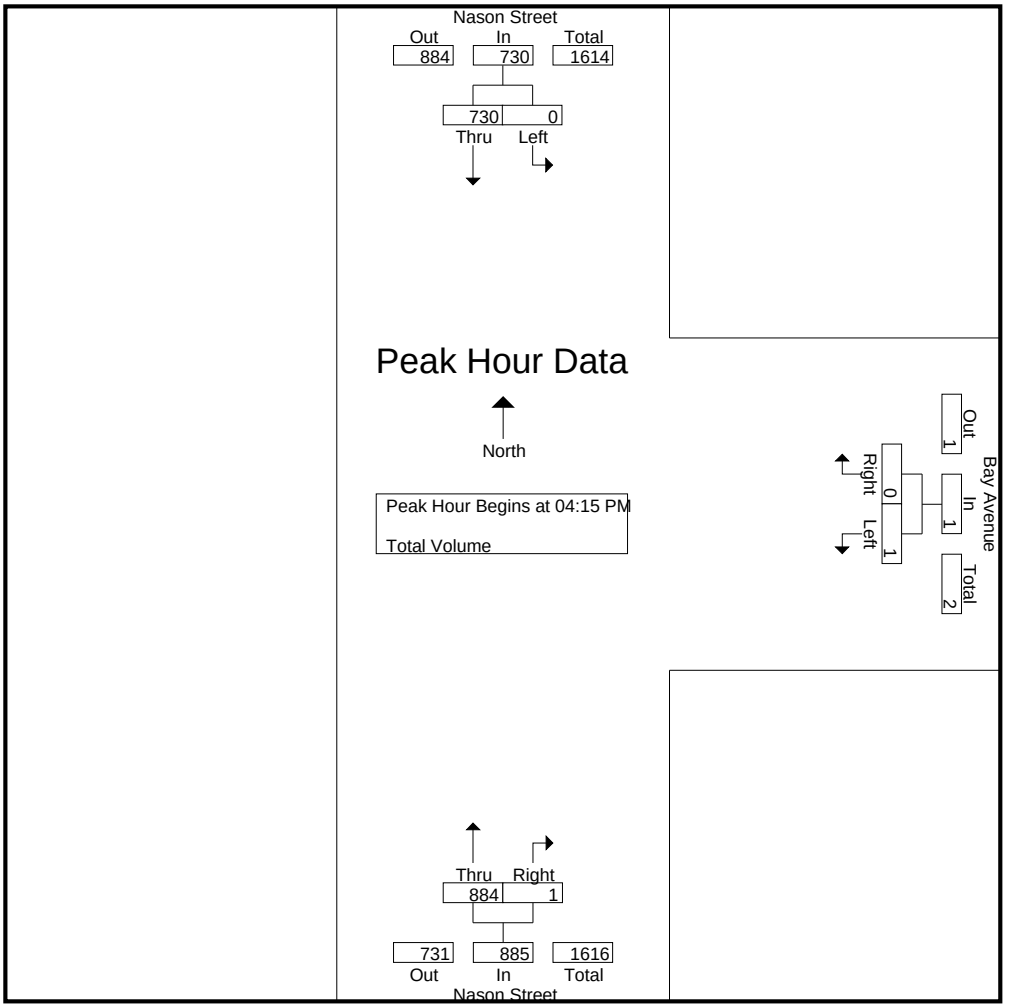
	Nason Street Southbound			Bay Avenue Westbound			Nason Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	164	164	2	0	2	205	0	205	371
04:15 PM	0	188	188	0	0	0	221	0	221	409
04:30 PM	0	208	208	1	0	1	253	1	254	463
04:45 PM	0	161	161	0	0	0	187	0	187	348
Total	0	721	721	3	0	3	866	1	867	1591
05:00 PM	0	173	173	0	0	0	223	0	223	396
05:15 PM	0	189	189	0	0	0	220	0	220	409
05:30 PM	0	235	235	0	0	0	180	0	180	415
05:45 PM	2	208	210	0	0	0	181	0	181	391
Total	2	805	807	0	0	0	804	0	804	1611
Grand Total	2	1526	1528	3	0	3	1670	1	1671	3202
Apprch %	0.1	99.9		100	0		99.9	0.1		
Total %	0.1	47.7	47.7	0.1	0	0.1	52.2	0	52.2	

	Nason Street Southbound			Bay Avenue Westbound			Nason Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	188	188	0	0	0	221	0	221	409
04:30 PM	0	**208**	**208**	**1**	0	**1**	**253**	**1**	**254**	**463**
04:45 PM	0	161	161	0	0	0	187	0	187	348
05:00 PM	0	173	173	0	0	0	223	0	223	396
Total Volume	0	730	730	1	0	1	884	1	885	1616
% App. Total	0	100		100	0		99.9	0.1		
PHF	.000	.877	.877	.250	.000	.250	.874	.250	.871	.873

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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:00 PM			04:15 PM		
+0 mins.	0	173	173	**2**	0	**2**	221	0	221
+15 mins.	0	189	189	0	0	0	**253**	**1**	**254**
+30 mins.	0	**235**	**235**	1	0	1	187	0	187
+45 mins.	**2**	208	210	0	0	0	223	0	223
Total Volume	2	805	807	3	0	3	884	1	885
% App. Total	0.2	99.8		100	0		99.9	0.1	
PHF	.250	.856	.859	.375	.000	.375	.874	.250	.871

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City of Moreno Valley
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Weather: Clear

File Name : 04_MRV_Nason_Alessandro AM
Site Code : 22119323
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Groups Printed- Total Volume

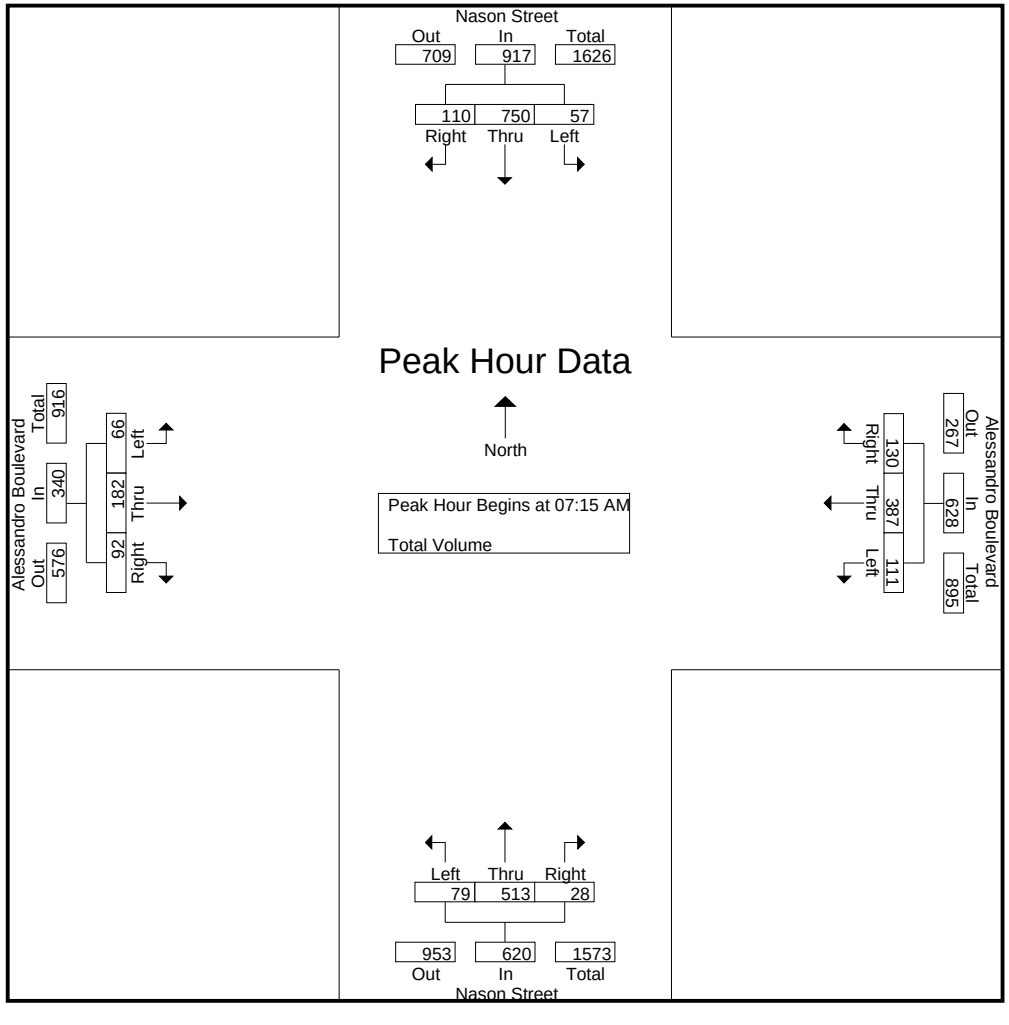
	Nason Street Southbound					Alessandro Boulevard Westbound					Nason Street Northbound					Alessandro Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	9	162	20	6	191	18	65	24	15	107	16	91	3	1	110	12	20	15	7	47	29	455	484
07:15 AM	5	170	22	6	197	20	89	26	16	135	15	106	4	3	125	14	33	15	10	62	35	519	554
07:30 AM	17	185	26	13	228	22	109	30	21	161	24	148	6	3	178	11	54	21	14	86	51	653	704
07:45 AM	21	248	33	18	302	43	102	54	34	199	22	139	8	5	169	25	51	31	16	107	73	777	850
Total	52	765	101	43	918	103	365	134	86	602	77	484	21	12	582	62	158	82	47	302	188	2404	2592
08:00 AM	14	147	29	10	190	26	87	20	11	133	18	120	10	8	148	16	44	25	16	85	45	556	601
08:15 AM	8	122	19	8	149	13	68	22	13	103	24	87	6	4	117	31	52	24	9	107	34	476	510
08:30 AM	9	125	5	2	139	21	63	18	15	102	12	84	5	2	101	11	51	17	12	79	31	421	452
08:45 AM	10	95	10	3	115	13	58	27	12	98	13	98	5	2	116	13	19	14	7	46	24	375	399
Total	41	489	63	23	593	73	276	87	51	436	67	389	26	16	482	71	166	80	44	317	134	1828	1962
Grand Total	93	1254	164	66	1511	176	641	221	137	1038	144	873	47	28	1064	133	324	162	91	619	322	4232	4554
Apprch %	6.2	83	10.9			17	61.8	21.3			13.5	82	4.4			21.5	52.3	26.2					
Total %	2.2	29.6	3.9		35.7	4.2	15.1	5.2		24.5	3.4	20.6	1.1		25.1	3.1	7.7	3.8		14.6	7.1	92.9	

	Nason Street Southbound				Alessandro Boulevard Westbound				Nason Street Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	5	170	22	197	20	89	26	135	15	106	4	125	14	33	15	62	519
07:30 AM	17	185	26	228	22	**109**	30	161	**24**	**148**	6	**178**	11	**54**	21	86	653
07:45 AM	**21**	**248**	**33**	**302**	**43**	102	**54**	**199**	22	139	8	169	**25**	51	**31**	**107**	**777**
08:00 AM	14	147	29	190	26	87	20	133	18	120	**10**	148	16	44	25	85	556
Total Volume	57	750	110	917	111	387	130	628	79	513	28	620	66	182	92	340	2505
% App. Total	6.2	81.8	12		17.7	61.6	20.7		12.7	82.7	4.5		19.4	53.5	27.1		
PHF	.679	.756	.833	.759	.645	.888	.602	.789	.823	.867	.700	.871	.660	.843	.742	.794	.806

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	Nason Street Southbound				Alessandro Boulevard Westbound				Nason Street Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:15 AM				07:15 AM				07:30 AM				
+0 mins.	9	162	20	191	20	89	26	135	15	106	4	125	11	**54**	21	86	
+15 mins.	5	170	22	197	22	**109**	30	161	**24**	**148**	6	**178**	25	51	**31**	**107**	
+30 mins.	17	185	26	228	**43**	102	**54**	**199**	22	139	8	169	16	44	25	85	
+45 mins.	**21**	**248**	**33**	**302**	26	87	20	133	18	120	**10**	148	**31**	52	24	107	
Total Volume	52	765	101	918	111	387	130	628	79	513	28	620	83	201	101	385	
% App. Total	5.7	83.3	11		17.7	61.6	20.7		12.7	82.7	4.5		21.6	52.2	26.2		
PHF	.619	.771	.765	.760	.645	.888	.602	.789	.823	.867	.700	.871	.669	.931	.815	.900	

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File Name : 04_MRV_Nason_Alessandro PM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

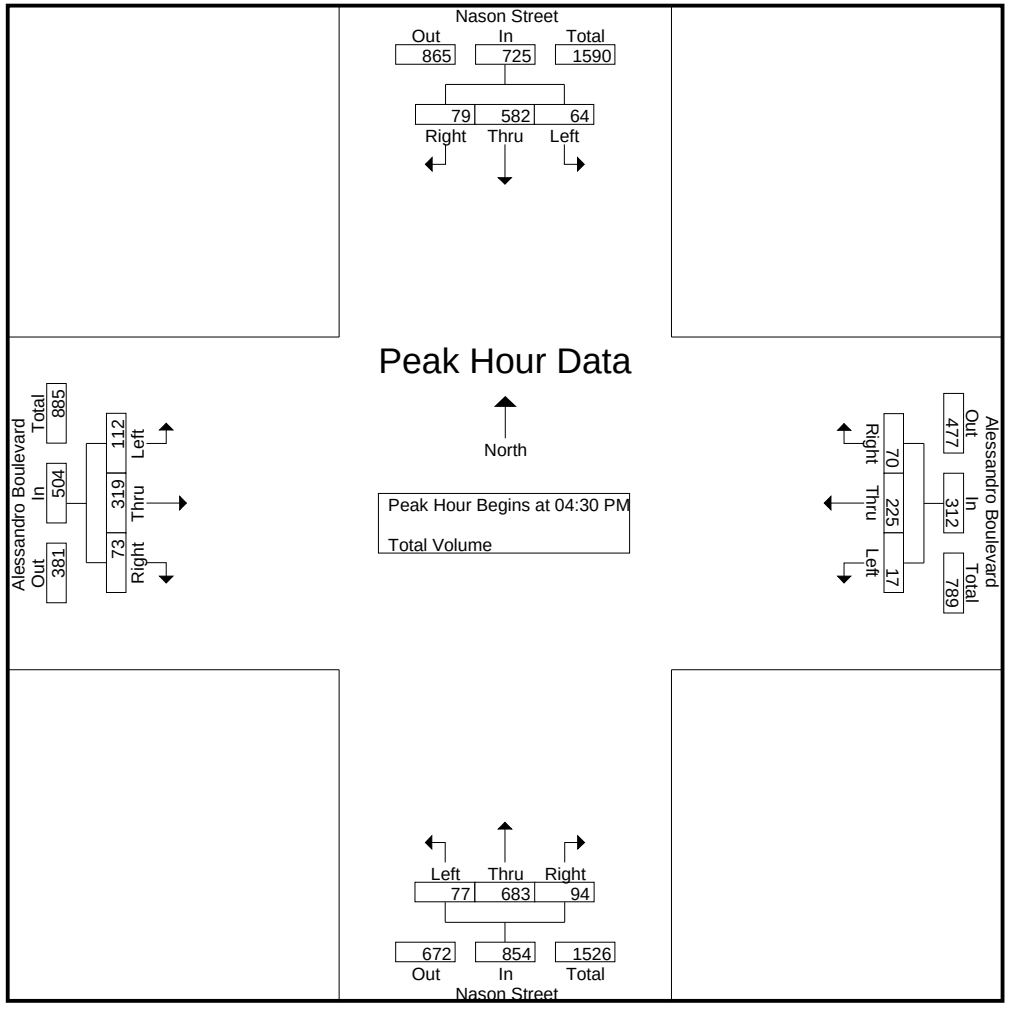
	Nason Street Southbound					Alessandro Boulevard Westbound					Nason Street Northbound					Alessandro Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	14	149	17	8	180	8	65	20	8	93	12	168	17	10	197	33	67	31	13	131	39	601	640
04:15 PM	15	143	24	14	182	2	64	18	12	84	15	158	9	9	182	39	55	21	7	115	42	563	605
04:30 PM	17	162	29	17	208	6	50	15	5	71	25	190	28	16	243	33	75	21	7	129	45	651	696
04:45 PM	21	139	17	11	177	4	55	19	12	78	21	154	19	8	194	18	88	16	11	122	42	571	613
Total	67	593	87	50	747	20	234	72	37	326	73	670	73	43	816	123	285	89	38	497	168	2386	2554
05:00 PM	13	151	10	4	174	1	62	15	12	78	19	185	27	11	231	33	73	19	12	125	39	608	647
05:15 PM	13	130	23	13	166	6	58	21	10	85	12	154	20	8	186	28	83	17	12	128	43	565	608
05:30 PM	23	195	24	8	242	11	45	12	5	68	14	140	16	9	170	25	60	17	16	102	38	582	620
05:45 PM	23	167	30	14	220	12	49	15	10	76	24	149	6	2	179	26	70	13	5	109	31	584	615
Total	72	643	87	39	802	30	214	63	37	307	69	628	69	30	766	112	286	66	45	464	151	2339	2490
Grand Total	139	1236	174	89	1549	50	448	135	74	633	142	1298	142	73	1582	235	571	155	83	961	319	4725	5044
Apprch %	9	79.8	11.2			7.9	70.8	21.3			9	82	9			24.5	59.4	16.1					
Total %	2.9	26.2	3.7		32.8	1.1	9.5	2.9		13.4	3	27.5	3		33.5	5	12.1	3.3		20.3	6.3	93.7	

	Nason Street Southbound				Alessandro Boulevard Westbound				Nason Street Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	17	**162**	**29**	**208**	**6**	50	15	71	**25**	**190**	**28**	**243**	**33**	75	**21**	**129**	**651**
04:45 PM	**21**	139	17	177	4	55	19	78	21	154	19	194	18	**88**	16	122	571
05:00 PM	13	151	10	174	1	**62**	15	78	19	185	27	231	33	73	19	125	608
05:15 PM	13	130	23	166	6	58	**21**	**85**	12	154	20	186	28	83	17	128	565
Total Volume	64	582	79	725	17	225	70	312	77	683	94	854	112	319	73	504	2395
% App. Total	8.8	80.3	10.9		5.4	72.1	22.4		9	80	11		22.2	63.3	14.5		
PHF	.762	.898	.681	.871	.708	.907	.833	.918	.770	.899	.839	.879	.848	.906	.869	.977	.920

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City of Moreno Valley
N/S: Nason Street
E/W: Alessandro Boulevard
Weather: Clear

File Name : 04_MRV_Nason_Alessandro PM
Site Code : 22119323
Start Date : 5/2/2019



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City of Moreno Valley
N/S: Nason Street
E/W: Alessandro Boulevard
Weather: Clear

File Name : 04_MRV_Nason_Alessandro PM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 3

	Nason Street Southbound				Alessandro Boulevard Westbound				Nason Street Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				04:00 PM				04:30 PM				04:30 PM				
+0 mins.	13	151	10	174	**8**	**65**	**20**	**93**	**25**	**190**	**28**	**243**	**33**	75	**21**	**129**	
+15 mins.	13	130	23	166	2	64	18	84	21	154	19	194	18	**88**	16	122	
+30 mins.	**23**	**195**	24	**242**	6	50	15	71	19	185	27	231	33	73	19	125	
+45 mins.	23	167	**30**	220	4	55	19	78	12	154	20	186	28	83	17	128	
Total Volume	72	643	87	802	20	234	72	326	77	683	94	854	112	319	73	504	
% App. Total	9	80.2	10.8		6.1	71.8	22.1		9	80	11		22.2	63.3	14.5		
PHF	.783	.824	.725	.829	.625	.900	.900	.876	.770	.899	.839	.879	.848	.906	.869	.977	

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 1

Groups Printed- Total Volume

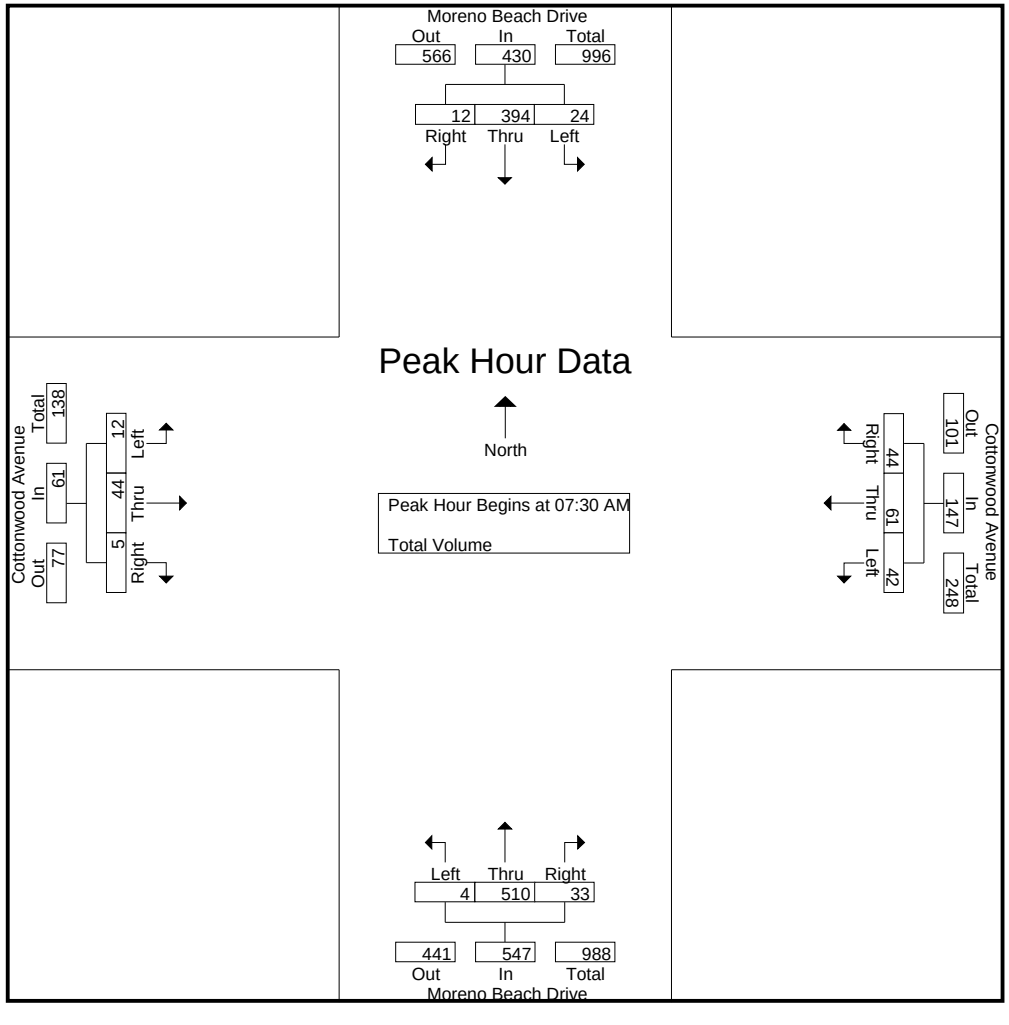
	Moreno Beach Drive Southbound					Cottonwood Avenue Westbound					Moreno Beach Drive Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	4	67	2	0	73	6	18	11	2	35	1	116	3	0	120	5	2	0	0	7	2	235	237
07:15 AM	5	81	1	0	87	15	11	9	5	35	1	103	4	2	108	4	7	2	2	13	9	243	252
07:30 AM	5	84	2	2	91	15	28	15	4	58	2	122	10	2	134	5	8	0	0	13	8	296	304
07:45 AM	3	106	3	1	112	14	21	13	1	48	1	161	8	2	170	5	14	1	0	20	4	350	354
Total	17	338	8	3	363	50	78	48	12	176	5	502	25	6	532	19	31	3	2	53	23	1124	1147
08:00 AM	10	111	5	2	126	4	5	9	4	18	0	110	10	0	120	1	15	2	1	18	7	282	289
08:15 AM	6	93	2	0	101	9	7	7	1	23	1	117	5	0	123	1	7	2	1	10	2	257	259
08:30 AM	5	75	5	0	85	4	4	7	3	15	1	90	7	0	98	2	5	0	0	7	3	205	208
08:45 AM	7	69	5	0	81	5	2	6	0	13	3	123	3	0	129	2	2	1	1	5	1	228	229
Total	28	348	17	2	393	22	18	29	8	69	5	440	25	0	470	6	29	5	3	40	13	972	985
Grand Total	45	686	25	5	756	72	96	77	20	245	10	942	50	6	1002	25	60	8	5	93	36	2096	2132
Apprch %	6	90.7	3.3			29.4	39.2	31.4			1	94	5			26.9	64.5	8.6					
Total %	2.1	32.7	1.2		36.1	3.4	4.6	3.7		11.7	0.5	44.9	2.4		47.8	1.2	2.9	0.4		4.4	1.7	98.3	

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	84	2	91	**15**	**28**	**15**	**58**	**2**	122	**10**	134	**5**	8	0	13	296
07:45 AM	3	106	3	112	14	21	13	48	1	**161**	8	**170**	5	14	1	**20**	**350**
08:00 AM	**10**	**111**	**5**	**126**	4	5	9	18	0	110	10	120	1	**15**	**2**	18	282
08:15 AM	6	93	2	101	9	7	7	23	1	117	5	123	1	7	2	10	257
Total Volume	24	394	12	430	42	61	44	147	4	510	33	547	12	44	5	61	1185
% App. Total	5.6	91.6	2.8		28.6	41.5	29.9		0.7	93.2	6		19.7	72.1	8.2		
PHF	.600	.887	.600	.853	.700	.545	.733	.634	.500	.792	.825	.804	.600	.733	.625	.763	.846

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 2



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City of Moreno Valley
N/S: Moreno Beach Drive
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Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood AM
Site Code : 22119323
Start Date : 5/2/2019
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	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:00 AM				07:30 AM				07:15 AM				
+0 mins.	5	84	2	91	6	18	11	35	**2**	122	**10**	134	4	7	**2**	13	
+15 mins.	3	106	3	112	**15**	11	9	35	1	**161**	8	**170**	**5**	8	0	13	
+30 mins.	**10**	**111**	**5**	**126**	15	**28**	**15**	**58**	0	110	10	120	5	14	1	**20**	
+45 mins.	6	93	2	101	14	21	13	48	1	117	5	123	1	**15**	2	18	
Total Volume	24	394	12	430	50	78	48	176	4	510	33	547	15	44	5	64	
% App. Total	5.6	91.6	2.8		28.4	44.3	27.3		0.7	93.2	6		23.4	68.8	7.8		
PHF	.600	.887	.600	.853	.833	.696	.800	.759	.500	.792	.825	.804	.750	.733	.625	.800	

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood PM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

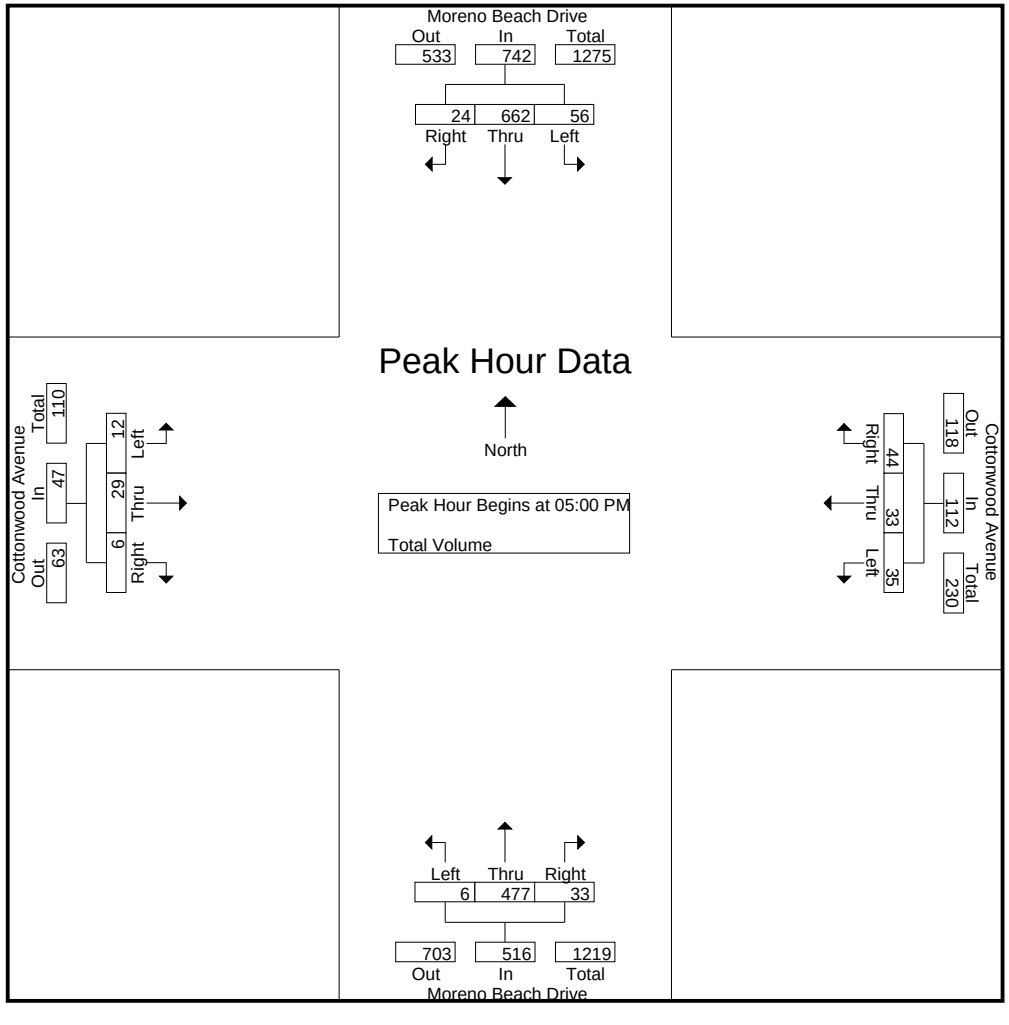
	Moreno Beach Drive Southbound					Cottonwood Avenue Westbound					Moreno Beach Drive Northbound					Cottonwood Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	12	165	2	1	179	6	6	6	4	18	2	101	18	3	121	2	5	1	0	8	8	326	334
04:15 PM	13	194	7	0	214	8	8	17	8	33	1	108	10	1	119	5	6	0	0	11	9	377	386
04:30 PM	16	153	5	2	174	4	4	12	7	20	6	144	7	0	157	5	11	1	0	17	9	368	377
04:45 PM	13	159	6	1	178	4	4	8	4	16	0	118	8	0	126	3	3	1	1	7	6	327	333
Total	54	671	20	4	745	22	22	43	23	87	9	471	43	4	523	15	25	3	1	43	32	1398	1430
05:00 PM	13	160	8	1	181	10	8	10	7	28	2	111	10	1	123	1	6	2	2	9	11	341	352
05:15 PM	15	156	4	3	175	9	12	12	4	33	0	122	10	3	132	4	8	2	1	14	11	354	365
05:30 PM	9	181	5	0	195	10	6	12	5	28	3	109	4	1	116	5	8	1	0	14	6	353	359
05:45 PM	19	165	7	1	191	6	7	10	8	23	1	135	9	2	145	2	7	1	0	10	11	369	380
Total	56	662	24	5	742	35	33	44	24	112	6	477	33	7	516	12	29	6	3	47	39	1417	1456
Grand Total	110	1333	44	9	1487	57	55	87	47	199	15	948	76	11	1039	27	54	9	4	90	71	2815	2886
Apprch %	7.4	89.6	3			28.6	27.6	43.7			1.4	91.2	7.3			30	60	10					
Total %	3.9	47.4	1.6		52.8	2	2	3.1		7.1	0.5	33.7	2.7		36.9	1	1.9	0.3		3.2	2.5	97.5	

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	13	160	**8**	181	**10**	8	10	28	2	111	**10**	123	1	6	**2**	9	341
05:15 PM	15	156	4	175	9	**12**	**12**	**33**	0	122	10	132	4	**8**	2	**14**	354
05:30 PM	9	**181**	5	**195**	10	6	12	28	**3**	109	4	116	**5**	8	1	14	353
05:45 PM	**19**	165	7	191	6	7	10	23	1	**135**	9	**145**	2	7	1	10	**369**
Total Volume	56	662	24	742	35	33	44	112	6	477	33	516	12	29	6	47	1417
% App. Total	7.5	89.2	3.2		31.2	29.5	39.3		1.2	92.4	6.4		25.5	61.7	12.8		
PHF	.737	.914	.750	.951	.875	.688	.917	.848	.500	.883	.825	.890	.600	.906	.750	.839	.960

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Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood PM
Site Code : 22119323
Start Date : 5/2/2019
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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Cottonwood Avenue
Weather: Clear

File Name : 10_MRV_Moreno Beach_Cottonwood PM
Site Code : 22119323
Start Date : 5/2/2019

	Moreno Beach Drive Southbound				Cottonwood Avenue Westbound				Moreno Beach Drive Northbound				Cottonwood Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				05:00 PM				04:30 PM				04:30 PM				
+0 mins.	13	**194**	7	**214**	**10**	8	10	28	**6**	**144**	7	**157**	**5**	**11**	1	**17**	
+15 mins.	**16**	153	5	174	9	**12**	**12**	**33**	0	118	8	126	3	3	1	7	
+30 mins.	13	159	6	178	10	6	12	28	2	111	**10**	123	1	6	**2**	9	
+45 mins.	13	160	**8**	181	6	7	10	23	0	122	10	132	4	8	2	14	
Total Volume	55	666	26	747	35	33	44	112	8	495	35	538	13	28	6	47	
% App. Total	7.4	89.2	3.5		31.2	29.5	39.3		1.5	92	6.5		27.7	59.6	12.8		
PHF	.859	.858	.813	.873	.875	.688	.917	.848	.333	.859	.875	.857	.650	.636	.750	.691	

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City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Alessandro Boulevard
Weather: Clear

File Name : 09_MRV_Moreno Beach_Alessandro AM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 1

Groups Printed- Total Volume

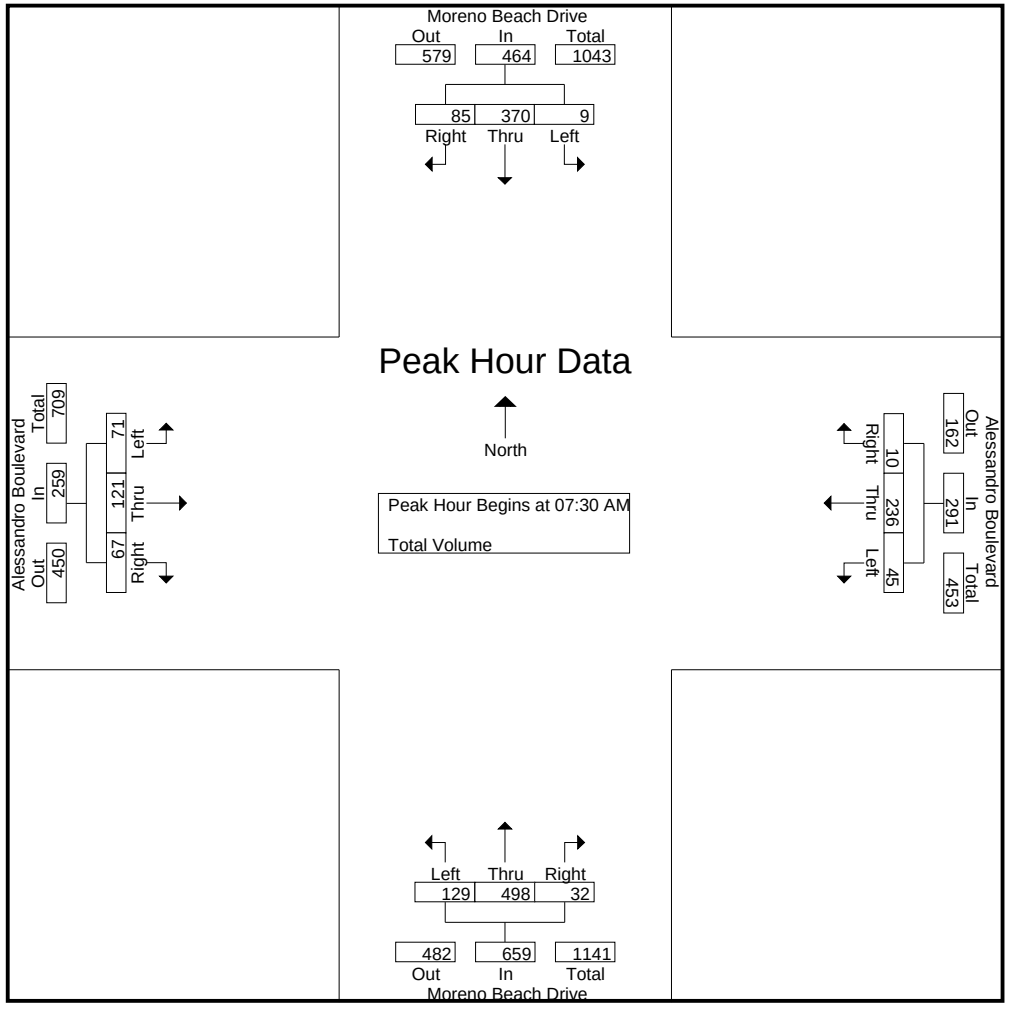
	Moreno Beach Drive Southbound					Alessandro Boulevard Westbound					Moreno Beach Drive Northbound					Alessandro Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	70	13	1	84	4	44	3	1	51	20	106	4	1	130	7	17	6	2	30	5	295	300
07:15 AM	2	85	15	5	102	16	56	2	1	74	25	89	6	0	120	8	16	10	4	34	10	330	340
07:30 AM	0	87	26	7	113	10	59	3	1	72	39	133	3	2	175	20	28	16	4	64	14	424	438
07:45 AM	3	100	27	2	130	11	80	5	1	96	49	146	7	4	202	16	33	24	10	73	17	501	518
Total	6	342	81	15	429	41	239	13	4	293	133	474	20	7	627	51	94	56	20	201	46	1550	1596
08:00 AM	4	85	17	6	106	13	53	1	1	67	28	112	13	3	153	16	30	17	9	63	19	389	408
08:15 AM	2	98	15	4	115	11	44	1	0	56	13	107	9	2	129	19	30	10	3	59	9	359	368
08:30 AM	2	78	9	1	89	8	42	1	1	51	18	82	7	3	107	18	22	5	3	45	8	292	300
08:45 AM	3	67	7	1	77	12	35	4	2	51	23	105	13	6	141	20	12	7	1	39	10	308	318
Total	11	328	48	12	387	44	174	7	4	225	82	406	42	14	530	73	94	39	16	206	46	1348	1394
Grand Total	17	670	129	27	816	85	413	20	8	518	215	880	62	21	1157	124	188	95	36	407	92	2898	2990
Apprch %	2.1	82.1	15.8			16.4	79.7	3.9			18.6	76.1	5.4			30.5	46.2	23.3					
Total %	0.6	23.1	4.5		28.2	2.9	14.3	0.7		17.9	7.4	30.4	2.1		39.9	4.3	6.5	3.3		14	3.1	96.9	

	Moreno Beach Drive Southbound				Alessandro Boulevard Westbound				Moreno Beach Drive Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	87	26	113	10	59	3	72	39	133	3	175	**20**	28	16	64	424
07:45 AM	3	**100**	**27**	**130**	11	**80**	**5**	**96**	**49**	**146**	7	**202**	16	**33**	**24**	**73**	**501**
08:00 AM	**4**	85	17	106	**13**	53	1	67	28	112	**13**	153	16	30	17	63	389
08:15 AM	2	98	15	115	11	44	1	56	13	107	9	129	19	30	10	59	359
Total Volume	9	370	85	464	45	236	10	291	129	498	32	659	71	121	67	259	1673
% App. Total	1.9	79.7	18.3		15.5	81.1	3.4		19.6	75.6	4.9		27.4	46.7	25.9		
PHF	.563	.925	.787	.892	.865	.738	.500	.758	.658	.853	.615	.816	.888	.917	.698	.887	.835

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Weather: Clear

File Name : 09_MRV_Moreno Beach_Alessandro AM
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N/S: Moreno Beach Drive
E/W: Alessandro Boulevard
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File Name : 09_MRV_Moreno Beach_Alessandro AM
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Start Date : 5/2/2019

	Moreno Beach Drive Southbound				Alessandro Boulevard Westbound				Moreno Beach Drive Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:30 AM				07:15 AM				07:30 AM				07:30 AM				
+0 mins.	0	87	26	113	**16**	56	2	74	39	133	3	175	**20**	28	16	64	
+15 mins.	3	**100**	**27**	**130**	10	59	3	72	**49**	**146**	7	**202**	16	**33**	**24**	**73**	
+30 mins.	**4**	85	17	106	11	**80**	**5**	**96**	28	112	**13**	153	16	30	17	63	
+45 mins.	2	98	15	115	13	53	1	67	13	107	9	129	19	30	10	59	
Total Volume	9	370	85	464	50	248	11	309	129	498	32	659	71	121	67	259	
% App. Total	1.9	79.7	18.3		16.2	80.3	3.6		19.6	75.6	4.9		27.4	46.7	25.9		
PHF	.563	.925	.787	.892	.781	.775	.550	.805	.658	.853	.615	.816	.888	.917	.698	.887	

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Weather: Clear

File Name : 09_MRV_Moreno Beach_Alessandro PM
Site Code : 22119323
Start Date : 5/2/2019
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Groups Printed- Total Volume

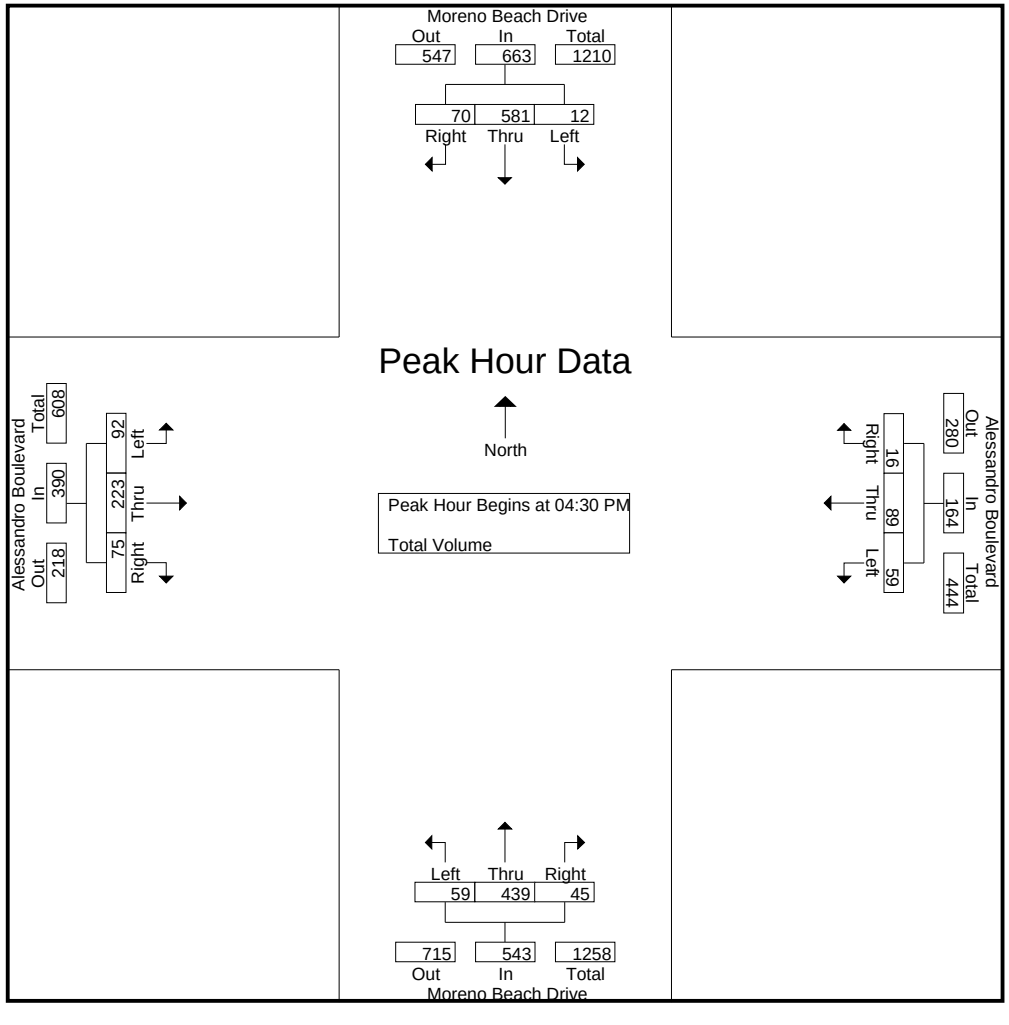
	Moreno Beach Drive Southbound					Alessandro Boulevard Westbound					Moreno Beach Drive Northbound					Alessandro Boulevard Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	6	137	18	2	161	14	31	4	3	49	14	107	10	4	131	26	44	20	9	90	18	431	449
04:15 PM	6	159	30	9	195	12	20	5	2	37	16	104	16	5	136	18	40	13	4	71	20	439	459
04:30 PM	5	143	11	5	159	14	20	7	5	41	19	123	13	3	155	22	47	22	4	91	17	446	463
04:45 PM	3	146	17	6	166	10	28	5	2	43	15	110	15	5	140	17	57	20	2	94	15	443	458
Total	20	585	76	22	681	50	99	21	12	170	64	444	54	17	562	83	188	75	19	346	70	1759	1829
05:00 PM	2	141	13	4	156	26	18	2	2	46	14	90	7	1	111	23	61	16	2	100	9	413	422
05:15 PM	2	151	29	7	182	9	23	2	2	34	11	116	10	0	137	30	58	17	2	105	11	458	469
05:30 PM	2	172	11	3	185	11	24	1	0	36	15	94	8	4	117	20	42	22	8	84	15	422	437
05:45 PM	3	159	9	3	171	13	29	2	2	44	15	119	9	4	143	24	31	21	8	76	17	434	451
Total	9	623	62	17	694	59	94	7	6	160	55	419	34	9	508	97	192	76	20	365	52	1727	1779
Grand Total	29	1208	138	39	1375	109	193	28	18	330	119	863	88	26	1070	180	380	151	39	711	122	3486	3608
Apprch %	2.1	87.9	10			33	58.5	8.5			11.1	80.7	8.2			25.3	53.4	21.2					
Total %	0.8	34.7	4		39.4	3.1	5.5	0.8		9.5	3.4	24.8	2.5		30.7	5.2	10.9	4.3		20.4	3.4	96.6	

	Moreno Beach Drive Southbound				Alessandro Boulevard Westbound				Moreno Beach Drive Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**5**	143	11	159	14	20	**7**	41	**19**	**123**	13	**155**	22	47	**22**	91	446
04:45 PM	3	146	17	166	10	**28**	5	43	15	110	**15**	140	17	57	20	94	443
05:00 PM	2	141	13	156	**26**	18	2	**46**	14	90	7	111	23	**61**	16	100	413
05:15 PM	2	**151**	**29**	**182**	9	23	2	34	11	116	10	137	**30**	58	17	**105**	**458**
Total Volume	12	581	70	663	59	89	16	164	59	439	45	543	92	223	75	390	1760
% App. Total	1.8	87.6	10.6		36	54.3	9.8		10.9	80.8	8.3		23.6	57.2	19.2		
PHF	.600	.962	.603	.911	.567	.795	.571	.891	.776	.892	.750	.876	.767	.914	.852	.929	.961

Counts Unlimited
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Corona, CA 92878
(951) 268-6268

City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Alessandro Boulevard
Weather: Clear

File Name : 09_MRV_Moreno Beach_Alessandro PM
Site Code : 22119323
Start Date : 5/2/2019
Page No : 2



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(951) 268-6268

City of Moreno Valley
N/S: Moreno Beach Drive
E/W: Alessandro Boulevard
Weather: Clear

File Name : 09_MRV_Moreno Beach_Alessandro PM
Site Code : 22119323
Start Date : 5/2/2019

	Moreno Beach Drive Southbound				Alessandro Boulevard Westbound				Moreno Beach Drive Northbound				Alessandro Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				04:00 PM				04:00 PM				04:30 PM				
+0 mins.	2	141	13	156	**14**	**31**	4	**49**	14	107	10	131	22	47	**22**	91	
+15 mins.	2	151	**29**	182	12	20	5	37	16	104	**16**	136	17	57	20	94	
+30 mins.	2	**172**	11	**185**	14	20	**7**	41	**19**	**123**	13	**155**	23	**61**	16	100	
+45 mins.	**3**	159	9	171	10	28	5	43	15	110	15	140	**30**	58	17	**105**	
Total Volume	9	623	62	694	50	99	21	170	64	444	54	562	92	223	75	390	
% App. Total	1.3	89.8	8.9		29.4	58.2	12.4		11.4	79	9.6		23.6	57.2	19.2		
PHF	.750	.906	.534	.938	.893	.798	.750	.867	.842	.902	.844	.906	.767	.914	.852	.929	

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City of Moreno Valley
N/S: Nason Street
E/W: Dracaea Avenue
Weather: Clear

File Name : MRVNADRAM
Site Code : 00318643
Start Date : 9/11/2018
Page No : 1

Groups Printed- Total Volume

	Nason Steet Southbound				Dracaea Avenue Westbound				Nason Steet Northbound				Dracaea Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	189	29	218	6	0	2	8	11	188	2	201	23	1	9	33	460
07:15 AM	0	211	42	253	7	2	2	11	38	173	3	214	24	2	9	35	513
07:30 AM	2	222	66	290	8	4	3	15	59	166	2	227	32	1	22	55	587
07:45 AM	2	261	70	333	11	14	3	28	78	235	4	317	32	2	31	65	743
Total	4	883	207	1094	32	20	10	62	186	762	11	959	111	6	71	188	2303
08:00 AM	6	246	47	299	1	2	1	4	20	219	2	241	37	4	16	57	601
08:15 AM	1	161	13	175	2	0	0	2	5	140	1	146	11	0	5	16	339
08:30 AM	2	124	6	132	5	1	0	6	4	100	2	106	14	0	4	18	262
08:45 AM	0	113	8	121	1	0	3	4	1	117	2	120	8	1	3	12	257
Total	9	644	74	727	9	3	4	16	30	576	7	613	70	5	28	103	1459
Grand Total	13	1527	281	1821	41	23	14	78	216	1338	18	1572	181	11	99	291	3762
Apprch %	0.7	83.9	15.4		52.6	29.5	17.9		13.7	85.1	1.1		62.2	3.8	34		
Total %	0.3	40.6	7.5	48.4	1.1	0.6	0.4	2.1	5.7	35.6	0.5	41.8	4.8	0.3	2.6	7.7	

	Nason Steet Southbound				Dracaea Avenue Westbound				Nason Steet Northbound				Dracaea Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	211	42	253	7	2	2	11	38	173	3	214	24	2	9	35	513
07:30 AM	2	222	66	290	8	4	**3**	15	59	166	2	227	32	1	22	55	587
07:45 AM	2	**261**	**70**	**333**	**11**	**14**	3	**28**	**78**	**235**	**4**	**317**	32	2	**31**	**65**	**743**
08:00 AM	**6**	246	47	299	1	2	1	4	20	219	2	241	**37**	**4**	16	57	601
Total Volume	10	940	225	1175	27	22	9	58	195	793	11	999	125	9	78	212	2444
% App. Total	0.9	80	19.1		46.6	37.9	15.5		19.5	79.4	1.1		59	4.2	36.8		
PHF	.417	.900	.804	.882	.614	.393	.750	.518	.625	.844	.688	.788	.845	.563	.629	.815	.822

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City of Moreno Valley
N/S: Nason Street
E/W: Dracaea Avenue
Weather: Clear

File Name : MRVNADRPM
Site Code : 00318643
Start Date : 9/11/2018
Page No : 1

Groups Printed- Total Volume

	Nason Steet Southbound				Dracaea Avenue Westbound				Nason Steet Northbound				Dracaea Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	157	23	184	1	2	4	7	5	232	6	243	14	3	4	21	455
04:15 PM	3	159	23	185	3	2	0	5	13	215	5	233	26	0	14	40	463
04:30 PM	1	190	27	218	3	1	2	6	6	215	1	222	34	1	8	43	489
04:45 PM	3	228	30	261	1	0	1	2	12	259	6	277	21	1	6	28	568
Total	11	734	103	848	8	5	7	20	36	921	18	975	95	5	32	132	1975
05:00 PM	5	226	28	259	4	2	4	10	13	271	3	287	23	1	12	36	592
05:15 PM	5	145	18	168	0	0	0	0	9	168	4	181	14	0	3	17	366
05:30 PM	4	171	35	210	3	3	3	9	9	189	3	201	29	0	8	37	457
05:45 PM	8	175	22	205	4	0	3	7	12	233	6	251	33	1	14	48	511
Total	22	717	103	842	11	5	10	26	43	861	16	920	99	2	37	138	1926
Grand Total	33	1451	206	1690	19	10	17	46	79	1782	34	1895	194	7	69	270	3901
Apprch %	2	85.9	12.2		41.3	21.7	37		4.2	94	1.8		71.9	2.6	25.6		
Total %	0.8	37.2	5.3	43.3	0.5	0.3	0.4	1.2	2	45.7	0.9	48.6	5	0.2	1.8	6.9	

	Nason Steet Southbound				Dracaea Avenue Westbound				Nason Steet Northbound				Dracaea Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	3	159	23	185	3	**2**	0	5	**13**	215	5	233	26	0	**14**	40	463
04:30 PM	1	190	27	218	3	1	2	6	6	215	1	222	**34**	**1**	8	**43**	489
04:45 PM	3	**228**	**30**	**261**	1	0	1	2	12	259	**6**	277	21	1	6	28	568
05:00 PM	**5**	226	28	259	**4**	2	**4**	**10**	13	**271**	3	**287**	23	1	12	36	**592**
Total Volume	12	803	108	923	11	5	7	23	44	960	15	1019	104	3	40	147	2112
% App. Total	1.3	87	11.7		47.8	21.7	30.4		4.3	94.2	1.5		70.7	2	27.2		
PHF	.600	.880	.900	.884	.688	.625	.438	.575	.846	.886	.625	.888	.765	.750	.714	.855	.892

Counts Unlimited, Inc.

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City of Moreno Valley
Nason Street
B/ Bay Avenue - Cottonwood Avenue
24 Hour Directional Volume Count

MRV001
Site Code: 221-19323

Start Time	02-May-19 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		24	154			36	121				
12:15		14	145			33	134				
12:30		13	131			28	120				
12:45		17	155	68	585	26	139	123	514	191	1099
01:00		11	124			14	156				
01:15		9	143			15	152				
01:30		16	111			19	154				
01:45		11	142	47	520	18	149	66	611	113	1131
02:00		5	151			23	176				
02:15		18	175			11	183				
02:30		13	199			19	162				
02:45		19	169	55	694	13	167	66	688	121	1382
03:00		11	198			8	**205**				
03:15		26	215			11	**236**				
03:30		14	201			20	**192**				
03:45		30	**205**	81	819	18	**220**	57	853	138	1672
04:00		40	**206**			21	169				
04:15		52	**224**			24	193				
04:30		47	**245**			23	199				
04:45		62	180	201	855	32	173	100	734	301	1589
05:00		73	231			32	165				
05:15		66	211			47	191				
05:30		76	175			98	233				
05:45		90	196	305	813	106	214	283	803	588	1616
06:00		69	150			90	172				
06:15		95	155			130	165				
06:30		99	161			163	186				
06:45		124	144	387	610	206	178	589	701	976	1311
07:00		119	140			174	172				
07:15		**149**	130			**202**	167				
07:30		**173**	156			**248**	151				
07:45		**221**	139	662	565	**284**	146	908	636	1570	1201
08:00		**166**	124			**193**	122				
08:15		147	111			148	137				
08:30		116	98			146	157				
08:45		137	112	566	445	126	182	613	598	1179	1043
09:00		115	114			127	134				
09:15		119	89			123	143				
09:30		128	54			125	126				
09:45		121	51	483	308	137	88	512	491	995	799
10:00		116	70			99	84				
10:15		126	54			108	105				
10:30		125	51			141	89				
10:45		133	35	500	210	126	81	474	359	974	569
11:00		146	38			101	70				
11:15		117	24			133	58				
11:30		153	30			119	34				
11:45		142	21	558	113	136	43	489	205	1047	318
Total		3913	6537	3913	6537	4280	7193	4280	7193	8193	13730
Combined Total		10450		10450		11473		11473		21923	
AM Peak	-	07:15	-	-	-	07:15	-	-	-	-	-
Vol.	-	709	-	-	-	927	-	-	-	-	-
P.H.F.		0.802				0.816					
PM Peak	-	-	03:45	-	-	-	03:00	-	-	-	-
Vol.	-	-	880	-	-	-	853	-	-	-	-
P.H.F.			0.898				0.904				
Percentage		37.4%	62.6%			37.3%	62.7%				
ADT/AADT		ADT 21,923		AADT 21,923							

APPENDIX C – LEVEL OF SERVICE CALCULATIONS

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Moreno Valley Elementary School

Vistro File: Z:\...\MORE36 -Final.vistro
Report File: Z:\...\Existing AM.pdf

Scenario 1 Existing AM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.386	22.9	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.397	25.5	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	SB Left	0.649	27.9	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.469	16.7	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.031	33.6	D
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.538	29.7	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.530	19.6	B
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	SB Left	0.581	33.1	C
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.011	0.0	A
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	WB Thru	0.000	0.0	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.639	19.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	22.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.386

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	291	50	23	241	68	27	151	37	57	272	43
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	16	0	0	29	0	0	12	0	0	5
Total Hourly Volume [veh/h]	83	291	34	23	241	39	27	151	25	57	272	38
Peak Hour Factor	0.8230	0.8230	0.8230	0.8070	0.8070	0.8070	0.7500	0.7500	0.7500	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	88	10	7	75	12	9	50	8	18	87	12
Total Analysis Volume [veh/h]	101	354	41	29	299	48	36	201	33	73	349	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	25	0	11	23	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	35	35	3	32	32	4	11	5	13	13
g / C, Green / Cycle	0.09	0.49	0.49	0.04	0.45	0.45	0.05	0.16	0.08	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.03	0.02	0.16	0.03	0.02	0.13	0.04	0.11	0.11
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1825	1781	1870	1791
c, Capacity [veh/h]	156	919	781	81	840	714	93	288	138	342	328
d1, Uniform Delay [s]	31.00	11.21	9.33	32.55	12.69	11.00	32.19	28.58	31.16	26.28	26.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.45	1.22	0.13	2.69	1.18	0.18	2.58	5.48	3.09	1.62	1.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.39	0.05	0.36	0.36	0.07	0.39	0.81	0.53	0.59	0.60
d, Delay for Lane Group [s/veh]	35.45	12.43	9.45	35.24	13.87	11.18	34.77	34.06	34.25	27.90	28.06
Lane Group LOS	D	B	A	D	B	B	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.79	3.36	0.32	0.52	3.06	0.42	0.64	4.07	1.27	3.11	3.03
50th-Percentile Queue Length [ft/ln]	44.71	84.00	8.04	13.10	76.38	10.57	16.00	101.79	31.70	77.76	75.64
95th-Percentile Queue Length [veh/ln]	3.22	6.05	0.58	0.94	5.50	0.76	1.15	7.33	2.28	5.60	5.45
95th-Percentile Queue Length [ft/ln]	80.49	151.20	14.47	23.58	137.49	19.02	28.80	183.23	57.07	139.96	136.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.45	12.43	9.45	35.24	13.87	11.18	34.77	34.06	34.06	34.25	27.97	28.06
Movement LOS	D	B	A	D	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.87			15.18			34.15			28.95		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.90											
Intersection LOS	C											
Intersection V/C	0.386											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.369	2.368	2.334	2.313
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	543	543	543
d_b, Bicycle Delay [s]	17.15	18.58	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.404	2.228	2.025	1.952
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	192	88	69	148	73	71	208	11	58	249	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	11	0	0	18	0	0	4	0	0	21
Total Hourly Volume [veh/h]	28	192	77	69	148	55	71	208	7	58	249	86
Peak Hour Factor	0.6600	0.6600	0.6600	0.8380	0.8380	0.8380	0.6310	0.6310	0.6310	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	73	29	21	44	16	28	82	3	23	99	34
Total Analysis Volume [veh/h]	42	291	117	82	177	66	113	330	11	92	395	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	27	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	28	28	6	29	29	6	15	6	15	15
g / C, Green / Cycle	0.06	0.39	0.39	0.08	0.42	0.42	0.09	0.21	0.08	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.02	0.11	0.12	0.05	0.07	0.07	0.06	0.18	0.05	0.15	0.15
s, saturation flow rate [veh/h]	1781	1870	1692	1781	1870	1702	1781	1859	1781	1870	1708
c, Capacity [veh/h]	103	731	661	145	775	705	161	400	151	392	358
d1, Uniform Delay [s]	31.93	14.70	14.75	31.07	12.91	12.95	31.02	26.51	31.01	25.77	25.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.56	1.00	1.15	3.42	0.45	0.51	5.43	5.24	3.89	2.35	2.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.29	0.30	0.56	0.16	0.17	0.70	0.85	0.61	0.71	0.71
d, Delay for Lane Group [s/veh]	34.49	15.70	15.90	34.48	13.35	13.46	36.46	31.76	34.90	28.11	28.48
Lane Group LOS	C	B	B	C	B	B	D	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.74	2.33	2.20	1.43	1.23	1.18	2.03	5.77	1.61	4.32	4.03
50th-Percentile Queue Length [ft/ln]	18.49	58.35	55.03	35.73	30.74	29.46	50.87	144.25	40.36	108.05	100.72
95th-Percentile Queue Length [veh/ln]	1.33	4.20	3.96	2.57	2.21	2.12	3.66	9.71	2.91	7.73	7.25
95th-Percentile Queue Length [ft/ln]	33.28	105.03	99.05	64.32	55.33	53.04	91.56	242.74	72.66	193.29	181.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.49	15.75	15.90	34.48	13.38	13.46	36.46	31.76	31.76	34.90	28.22	28.48
Movement LOS	C	B	B	C	B	B	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	17.54			18.72			32.93			29.26		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	25.47											
Intersection LOS	C											
Intersection V/C	0.397											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.450	2.491	2.364	2.439
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	657	571
d_b, Bicycle Delay [s]	20.06	20.06	15.78	17.86
l_b,int, Bicycle LOS Score for Intersection	1.940	1.843	2.315	2.092
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	68	651	142	9	1048	86	204	185	207	121	118	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	28	0	0	28	0	0	99	0	0	13
Total Hourly Volume [veh/h]	68	651	114	9	1048	58	204	185	108	121	118	8
Peak Hour Factor	0.8440	0.8440	0.8440	0.7930	0.7930	0.7930	0.6080	0.6080	0.6080	0.7620	0.7620	0.7620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	193	34	3	330	18	84	76	44	40	39	3
Total Analysis Volume [veh/h]	81	771	135	11	1322	73	336	304	178	159	155	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	27	42	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	50	50	2	46	46	20	17	17	10	7	7
g / C, Green / Cycle	0.07	0.53	0.53	0.02	0.48	0.48	0.21	0.17	0.17	0.11	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.08	0.01	0.37	0.05	0.19	0.09	0.11	0.09	0.04	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	118	1883	841	35	1719	767	373	622	278	193	262	117
d1, Uniform Delay [s]	43.48	13.48	11.54	45.99	20.25	13.34	36.65	35.43	36.49	41.54	42.69	41.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.16	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.96	0.66	0.41	4.88	3.38	0.25	10.97	0.60	2.46	8.55	2.12	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.41	0.16	0.31	0.77	0.10	0.90	0.49	0.64	0.82	0.59	0.09
d, Delay for Lane Group [s/veh]	50.44	14.14	11.95	50.87	23.63	13.59	47.62	36.02	38.95	50.09	44.82	41.40
Lane Group LOS	D	B	B	D	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.08	4.86	1.50	0.30	12.10	0.87	8.59	3.20	3.98	4.07	1.83	0.23
50th-Percentile Queue Length [ft/ln]	51.92	121.41	37.50	7.57	302.50	21.86	214.87	79.91	99.57	101.71	45.68	5.68
95th-Percentile Queue Length [veh/ln]	3.74	8.47	2.70	0.54	17.80	1.57	13.40	5.75	7.17	7.32	3.29	0.41
95th-Percentile Queue Length [ft/ln]	93.46	211.77	67.49	13.62	445.12	39.35	335.07	143.83	179.23	183.08	82.22	10.23

Movement, Approach, & Intersection Results

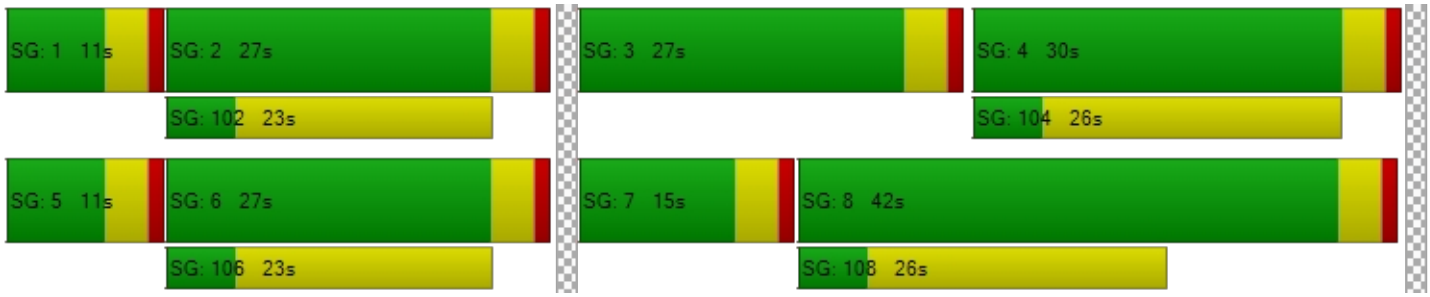
d_M, Delay for Movement [s/veh]	50.44	14.14	11.95	50.87	23.63	13.59	47.62	36.02	38.95	50.09	44.82	41.40
Movement LOS	D	B	B	D	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	16.82			23.32			41.43			47.30		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	27.89											
Intersection LOS	C											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	2.947	2.913	2.802	2.608
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	484	484	800	547
d_b, Bicycle Delay [s]	27.28	27.28	17.10	25.06
l_b,int, Bicycle LOS Score for Intersection	2.397	2.743	2.316	1.838
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.469

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	0	45	664	4	0	33	895	132	113	58	43	6	58	87
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	18	0	0	15	0	0	53
Total Hourly Volume [veh/h]	0	45	664	4	0	33	895	114	113	58	28	6	58	34
Peak Hour Factor	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.7840	0.7840	0.7840	0.6980	0.6980	0.6980
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	14	201	1	0	10	279	35	36	18	9	2	21	12
Total Analysis Volume [veh/h]	0	55	806	5	0	41	1115	142	144	74	36	9	83	49
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	16	26	0	0	11	21	0	13	30	0	13	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	45	45	4	44	44	8	13	13	1	7	7
g / C, Green / Cycle	0.06	0.56	0.56	0.05	0.55	0.55	0.10	0.17	0.17	0.02	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.00	0.02	0.31	0.09	0.08	0.04	0.02	0.01	0.04	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	113	1997	891	96	1963	877	181	315	267	31	157	133
d1, Uniform Delay [s]	36.31	10.00	7.76	36.74	11.75	8.86	35.20	28.89	28.39	38.92	35.22	34.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.23	0.61	0.01	2.97	1.20	0.40	7.64	0.38	0.23	5.00	2.75	1.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.40	0.01	0.43	0.57	0.16	0.79	0.24	0.13	0.29	0.53	0.37
d, Delay for Lane Group [s/veh]	39.54	10.61	7.77	39.71	12.95	9.26	42.84	29.27	28.62	43.91	37.97	36.42
Lane Group LOS	D	B	A	D	B	A	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.12	3.74	0.04	0.84	6.05	1.20	3.07	1.24	0.59	0.22	1.64	0.95
50th-Percentile Queue Length [ft/ln]	28.04	93.41	0.93	21.06	151.36	29.92	76.67	30.95	14.82	5.38	41.02	23.69
95th-Percentile Queue Length [veh/ln]	2.02	6.73	0.07	1.52	10.09	2.15	5.52	2.23	1.07	0.39	2.95	1.71
95th-Percentile Queue Length [ft/ln]	50.47	168.14	1.67	37.91	252.25	53.86	138.01	55.71	26.67	9.68	73.84	42.65

Movement, Approach, & Intersection Results

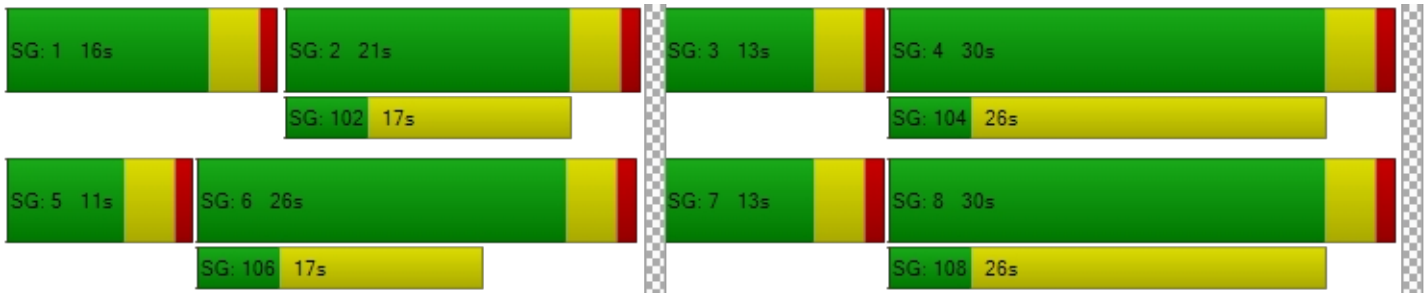
d_M, Delay for Movement [s/veh]	39.5	39.5	10.6	7.77	39.7	39.7	12.9	9.26	42.84	29.27	28.62	43.91	37.97	36.42
Movement LOS	D	D	B	A	D	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	12.43				13.39				36.87			37.81		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	16.74													
Intersection LOS	B													
Intersection V/C	0.469													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.780	2.859	2.286	2.279
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	425	650	650
d_b, Bicycle Delay [s]	21.03	24.81	18.23	18.23
l_b,int, Bicycle LOS Score for Intersection	2.229	2.611	2.003	1.880
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	719	1	0	1	939	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	719	1	0	1	939	2	2
Peak Hour Factor	0.8650	0.8650	0.8200	0.8200	0.8200	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	208	0	0	0	286	1	1
Total Analysis Volume [veh/h]	831	1	0	1	1145	4	4
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.03	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	16.12	9.53	0.00	33.55	11.19
Movement LOS	A	A	C	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.06	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.09	0.09	0.00	1.44	0.52
d_A, Approach Delay [s/veh]	0.00		0.01			22.37	
Approach LOS	A		A			C	
d_I, Intersection Delay [s/veh]	0.09						
Intersection LOS	D						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	29.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	81	523	29	0	58	765	112	67	186	94	0	113	395	133
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	20	0	0	0	48	0	0	57	0	0	0	84
Total Hourly Volume [veh/h]	0	81	523	9	0	58	765	64	67	186	37	0	113	395	49
Peak Hour Factor	0.87	0.87	0.87	0.87	0.75	0.75	0.75	0.75	0.7940	0.7940	0.7940	0.78	0.78	0.78	0.78
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	23	150	3	0	19	252	21	21	59	12	0	36	125	16
Total Analysis Volume [veh/h]	0	93	600	10	0	76	1008	84	84	234	47	0	143	501	62
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	33	0	0	14	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	36	36	6	36	36	6	23	23	9	9	26	26
g / C, Green / Cycle	0.07	0.40	0.40	0.07	0.39	0.39	0.07	0.26	0.26	0.10	0.10	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.01	0.04	0.20	0.05	0.02	0.06	0.03	0.08	0.08	0.26	0.04
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	127	1416	642	122	2005	626	240	927	407	184	184	548	465
d1, Uniform Delay [s]	41.03	19.68	16.46	40.94	20.67	17.50	40.02	26.67	25.71	39.5	39.5	31.0	23.7
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.25	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.86	0.93	0.04	5.13	0.90	0.45	0.87	0.14	0.12	6.98	6.98	13.3	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.42	0.02	0.62	0.50	0.13	0.35	0.25	0.12	0.78	0.78	0.91	0.13
d, Delay for Lane Group [s/veh]	48.90	20.61	16.51	46.07	21.57	17.95	40.89	26.82	25.83	46.5	46.5	44.3	23.8
Lane Group LOS	D	C	B	D	C	B	D	C	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.28	4.57	0.13	1.80	5.31	1.17	0.91	1.99	0.78	3.40	3.40	12.1	0.98
50th-Percentile Queue Length [ft/ln]	56.91	114.35	3.26	44.94	132.68	29.14	22.70	49.64	19.39	85.0	85.0	304.	24.4
95th-Percentile Queue Length [veh/ln]	4.10	8.08	0.23	3.24	9.09	2.10	1.63	3.57	1.40	6.12	6.12	17.9	1.76
95th-Percentile Queue Length [ft/ln]	102.43	202.03	5.87	80.90	227.13	52.45	40.85	89.35	34.91	153.	153.	447.	44.0

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.9	48.9	20.6	16.5	46.0	46.0	21.5	17.9	40.89	26.82	25.83	46.5	46.5	44.3	23.8
Movement LOS	D	D	C	B	D	D	C	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	24.29				22.90				29.93			43.60			
Approach LOS	C				C				C			D			
d_I, Intersection Delay [s/veh]	29.75														
Intersection LOS	C														
Intersection V/C	0.538														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.899	3.045	2.836	2.757
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	644	711
d_b, Bicycle Delay [s]	21.36	22.76	20.67	18.69
l_b,int, Bicycle LOS Score for Intersection	2.156	2.187	1.908	2.627
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.530

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	520	34	24	402	12	12	45	5	43	62	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	2	0	0	10
Total Hourly Volume [veh/h]	4	520	30	24	402	7	12	45	3	43	62	35
Peak Hour Factor	0.8040	0.8040	0.8040	0.8530	0.8530	0.8530	0.7630	0.7630	0.7630	0.6340	0.6340	0.6340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	162	9	7	118	2	4	15	1	17	24	14
Total Analysis Volume [veh/h]	5	647	37	28	471	8	16	59	4	68	98	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	20	0	11	19	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	35	35	3	37	6	11
g / C, Green / Cycle	0.01	0.50	0.50	0.04	0.53	0.08	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.35	0.02	0.02	0.26	0.04	0.13
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1864	1835	1765
c, Capacity [veh/h]	18	931	791	77	989	146	268
d1, Uniform Delay [s]	34.45	13.53	9.06	32.62	10.40	31.06	28.84
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.95	4.28	0.11	2.88	1.70	3.12	6.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.70	0.05	0.36	0.48	0.54	0.83
d, Delay for Lane Group [s/veh]	42.40	17.81	9.17	35.50	12.09	34.18	35.19
Lane Group LOS	D	B	A	D	B	C	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.12	7.90	0.28	0.51	4.48	1.37	3.92
50th-Percentile Queue Length [ft/ln]	3.06	197.47	7.12	12.74	112.00	34.20	97.92
95th-Percentile Queue Length [veh/ln]	0.22	12.51	0.51	0.92	7.95	2.46	7.05
95th-Percentile Queue Length [ft/ln]	5.50	312.70	12.81	22.92	198.79	61.56	176.26

Movement, Approach, & Intersection Results

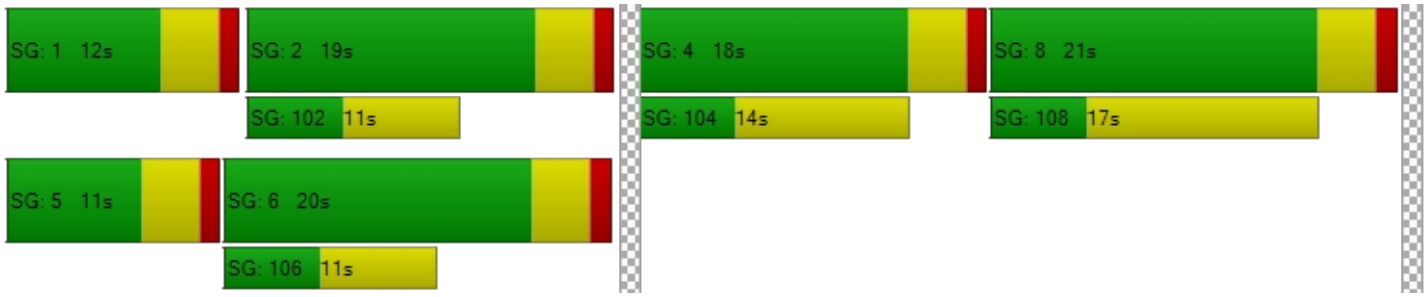
d_M, Delay for Movement [s/veh]	42.40	17.81	9.17	35.50	12.09	12.09	34.18	34.18	34.18	35.19	35.19	35.19
Movement LOS	D	B	A	D	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	17.52			13.39			34.18			35.19		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	19.61											
Intersection LOS	B											
Intersection V/C	0.530											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.427	2.339	1.803	1.893
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	429	486	400
d_b, Bicycle Delay [s]	20.83	21.61	20.06	22.40
l_b,int, Bicycle LOS Score for Intersection	2.703	2.404	1.693	1.941
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.581

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	132	508	33	9	377	87	72	123	68	46	241	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	11	0	0	19	0	0	27	0	0	3
Total Hourly Volume [veh/h]	132	508	22	9	377	68	72	123	41	46	241	7
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	156	7	3	106	19	20	35	12	15	79	2
Total Analysis Volume [veh/h]	162	623	27	10	423	76	81	139	46	61	318	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	28	0	12	18	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	29	1	22	6	23	5	23
g / C, Green / Cycle	0.11	0.39	0.02	0.29	0.08	0.31	0.07	0.30
(v / s)_i Volume / Saturation Flow Rate	0.09	0.34	0.01	0.27	0.04	0.10	0.03	0.18
s, saturation flow rate [veh/h]	1781	1886	1810	1850	1810	1791	1781	1861
c, Capacity [veh/h]	205	729	33	536	139	562	121	567
d1, Uniform Delay [s]	32.34	21.56	36.39	25.93	33.50	19.72	33.78	22.01
k, delay calibration	0.11	0.34	0.11	0.21	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.63	11.18	4.89	13.34	3.81	1.56	3.20	4.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.89	0.30	0.93	0.58	0.33	0.50	0.58
d, Delay for Lane Group [s/veh]	38.98	32.74	41.28	39.27	37.32	21.29	36.98	26.23
Lane Group LOS	D	C	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.15	12.06	0.22	10.11	1.54	2.60	1.15	5.28
50th-Percentile Queue Length [ft/ln]	78.84	301.41	5.56	252.78	38.39	65.10	28.84	131.92
95th-Percentile Queue Length [veh/ln]	5.68	17.75	0.40	15.33	2.76	4.69	2.08	9.04
95th-Percentile Queue Length [ft/ln]	141.91	443.77	10.00	383.16	69.10	117.18	51.91	226.10

Movement, Approach, & Intersection Results

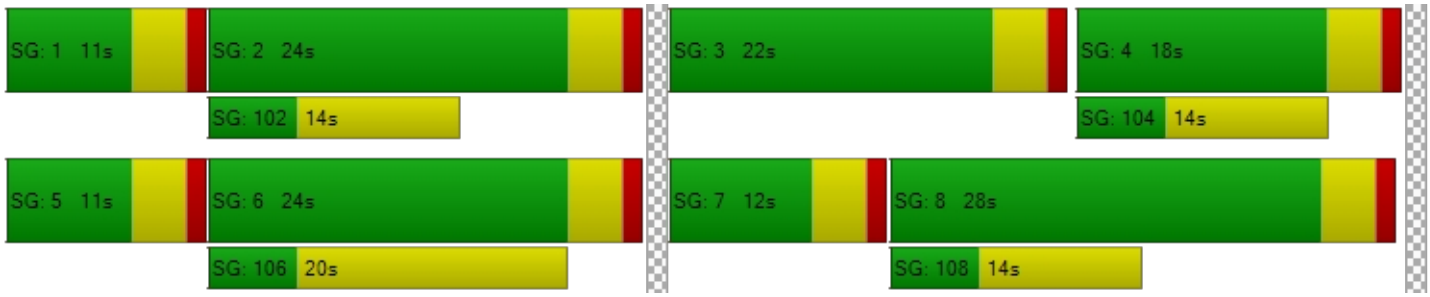
d_M, Delay for Movement [s/veh]	38.98	32.74	32.74	41.28	39.27	39.27	37.32	21.29	21.29	36.98	26.23	26.23
Movement LOS	D	C	C	D	D	D	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	33.98			39.31			26.17			27.92		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	33.11											
Intersection LOS	C											
Intersection V/C	0.581											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.397	2.562	2.253	2.125
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	373	533	533
d_b, Bicycle Delay [s]	17.34	24.81	20.17	20.17
l_b,int, Bicycle LOS Score for Intersection	2.918	2.431	2.043	2.205
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	721	0	0	940	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	721	0	0	940	0	0
Peak Hour Factor	0.8650	1.0000	1.0000	0.8200	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	208	0	0	287	0	0
Total Analysis Volume [veh/h]	834	0	0	1146	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.16
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		11.16	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	2	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	2	4	0
Peak Hour Factor	0.9000	0.9000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	2	0
Total Analysis Volume [veh/h]	0	0	0	4	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.57	8.35	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.46		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	203	825	11	10	978	234	130	9	81	28	23	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	73	0	0	34	0	0	4
Total Hourly Volume [veh/h]	203	825	8	10	978	161	130	9	47	28	23	5
Peak Hour Factor	0.7880	0.7880	0.7880	0.8820	0.8820	0.8820	0.8150	0.8150	0.8150	0.5180	0.5180	0.5180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	262	3	3	277	46	40	3	14	14	11	2
Total Analysis Volume [veh/h]	258	1047	10	11	1109	183	160	11	58	54	44	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	32	0	11	25	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	41	41	1	30	30	15	15	15	15
g / C, Green / Cycle	0.18	0.59	0.59	0.02	0.43	0.43	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.16	0.33	0.01	0.01	0.35	0.13	0.13	0.05	0.05	0.03
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1215	1466	1198	1630
c, Capacity [veh/h]	297	1900	848	32	1370	612	295	317	278	352
d1, Uniform Delay [s]	27.71	8.62	5.84	33.88	17.55	13.16	28.59	22.58	26.74	22.26
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.72	1.16	0.03	6.43	5.26	1.25	1.56	0.34	0.34	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.55	0.01	0.35	0.81	0.30	0.54	0.22	0.19	0.15
d, Delay for Lane Group [s/veh]	35.43	9.78	5.87	40.31	22.81	14.41	30.15	22.93	27.08	22.46
Lane Group LOS	D	A	A	D	C	B	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	4.62	4.23	0.06	0.24	8.01	1.95	2.61	0.92	0.80	0.71
50th-Percentile Queue Length [ft/ln]	115.60	105.64	1.42	5.89	200.13	48.65	65.29	23.11	20.04	17.73
95th-Percentile Queue Length [veh/ln]	8.15	7.60	0.10	0.42	12.65	3.50	4.70	1.66	1.44	1.28
95th-Percentile Queue Length [ft/ln]	203.76	189.92	2.55	10.61	316.14	87.57	117.51	41.60	36.07	31.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.43	9.78	5.87	40.31	22.81	14.41	30.15	22.93	22.93	27.08	22.46	22.46
Movement LOS	D	A	A	D	C	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.78			21.78			27.97			24.77		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	19.25											
Intersection LOS	B											
Intersection V/C	0.639											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.941	3.195	2.244	1.983
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	600	657	657
d_b, Bicycle Delay [s]	12.60	17.15	15.78	15.78
l_b,int, Bicycle LOS Score for Intersection	2.647	2.695	1.994	1.744
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

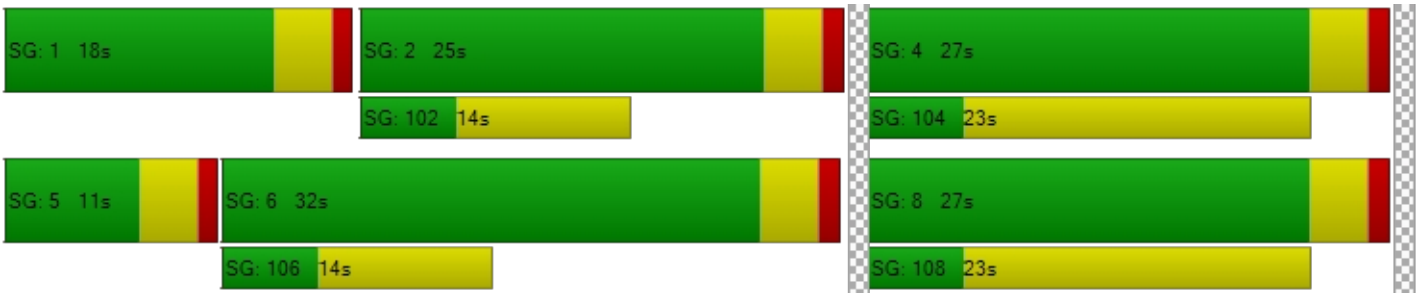


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Moreno Valley Elementary School

Vistro File: Z:\...\MORE36 -Final.vistro
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Scenario 2 Existing PM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	SB Left	0.314	20.2	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.179	24.4	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	SB Left	0.442	19.7	B
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.375	14.0	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.033	35.6	E
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.430	23.1	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.494	16.1	B
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	EB Left	0.651	35.1	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.010	0.0	A
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	WB Thru	0.000	0.0	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.460	10.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.314

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	273	22	13	215	23	19	160	74	21	133	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	7	0	0	10	0	0	24	0	0	1
Total Hourly Volume [veh/h]	41	273	15	13	215	13	19	160	50	21	133	9
Peak Hour Factor	0.9270	0.9270	0.9270	0.9360	0.9360	0.9360	0.8650	0.8650	0.8650	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	74	4	3	57	3	5	46	14	6	38	3
Total Analysis Volume [veh/h]	44	294	16	14	230	14	22	185	58	24	152	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	24	0	12	25	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	38	38	2	36	36	3	12	3	12	12
g / C, Green / Cycle	0.06	0.54	0.54	0.02	0.51	0.51	0.04	0.17	0.04	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.01	0.01	0.12	0.01	0.01	0.14	0.01	0.04	0.04
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1794	1781	1870	1830
c, Capacity [veh/h]	106	1012	860	46	949	806	66	298	70	315	308
d1, Uniform Delay [s]	31.85	8.78	7.47	33.60	9.72	8.60	32.99	28.27	32.86	25.40	25.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.57	0.73	0.04	3.65	0.61	0.04	2.95	5.44	2.85	0.43	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.29	0.02	0.30	0.24	0.02	0.33	0.82	0.34	0.26	0.26
d, Delay for Lane Group [s/veh]	34.42	9.51	7.51	37.25	10.33	8.64	35.94	33.71	35.71	25.83	25.86
Lane Group LOS	C	A	A	D	B	A	D	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.77	2.30	0.11	0.27	1.91	0.10	0.41	4.21	0.44	1.17	1.16
50th-Percentile Queue Length [ft/ln]	19.32	57.53	2.67	6.85	47.71	2.58	10.20	105.25	11.03	29.27	29.09
95th-Percentile Queue Length [veh/ln]	1.39	4.14	0.19	0.49	3.44	0.19	0.73	7.58	0.79	2.11	2.09
95th-Percentile Queue Length [ft/ln]	34.78	103.55	4.80	12.33	85.88	4.64	18.36	189.38	19.85	52.68	52.36

Movement, Approach, & Intersection Results

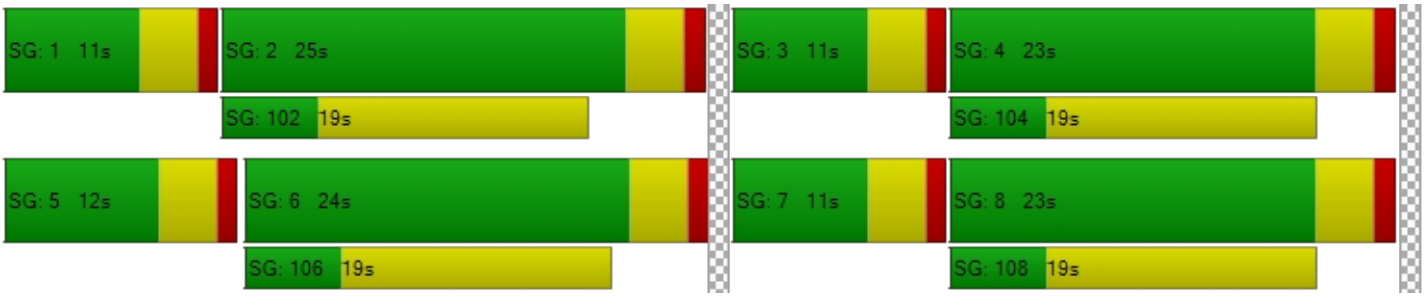
d_M, Delay for Movement [s/veh]	34.42	9.51	7.51	37.25	10.33	8.64	35.94	33.71	33.71	35.71	25.84	25.86
Movement LOS	C	A	A	D	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	12.51			11.70			33.89			27.12		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.20											
Intersection LOS	C											
Intersection V/C	0.314											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.300	2.279	2.278	2.221
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	600	543	543
d_b, Bicycle Delay [s]	17.86	17.15	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.155	2.002	2.036	1.714
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.179

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	100	27	18	71	18	26	162	9	24	165	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	3	0	0	3
Total Hourly Volume [veh/h]	7	100	23	18	71	13	26	162	6	24	165	13
Peak Hour Factor	0.8620	0.8620	0.8620	0.8550	0.8550	0.8550	0.8180	0.8180	0.8180	0.8020	0.8020	0.8020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	29	7	5	21	4	8	50	2	7	51	4
Total Analysis Volume [veh/h]	8	116	27	21	83	15	32	198	7	30	206	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	24	0	11	21	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	39	39	2	40	40	3	10	3	10	10
g / C, Green / Cycle	0.02	0.55	0.55	0.03	0.57	0.57	0.05	0.14	0.05	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.04	0.04	0.01	0.03	0.03	0.02	0.11	0.02	0.06	0.06
s, saturation flow rate [veh/h]	1781	1870	1752	1781	1870	1774	1781	1859	1781	1870	1823
c, Capacity [veh/h]	29	1029	965	63	1066	1011	86	260	83	257	251
d1, Uniform Delay [s]	34.15	7.38	7.40	33.06	6.68	6.68	32.39	29.22	32.50	27.78	27.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.02	0.13	0.15	3.00	0.08	0.09	2.63	5.30	2.67	1.15	1.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.07	0.07	0.33	0.05	0.05	0.37	0.79	0.36	0.43	0.44
d, Delay for Lane Group [s/veh]	39.16	7.51	7.54	36.07	6.76	6.77	35.02	34.52	35.16	28.93	29.02
Lane Group LOS	D	A	A	D	A	A	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.17	0.47	0.47	0.39	0.30	0.30	0.57	3.58	0.54	1.74	1.72
50th-Percentile Queue Length [ft/ln]	4.29	11.87	11.74	9.78	7.51	7.45	14.34	89.57	13.52	43.41	43.02
95th-Percentile Queue Length [veh/ln]	0.31	0.85	0.85	0.70	0.54	0.54	1.03	6.45	0.97	3.13	3.10
95th-Percentile Queue Length [ft/ln]	7.71	21.37	21.13	17.61	13.51	13.42	25.82	161.23	24.33	78.13	77.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.16	7.52	7.54	36.07	6.76	6.77	35.02	34.52	34.52	35.16	28.97	29.02
Movement LOS	D	A	A	D	A	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	9.20			11.94			34.59			29.71		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	24.37											
Intersection LOS	C											
Intersection V/C	0.179											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.349	2.353	2.240	2.247
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	486	571	571
d_b, Bicycle Delay [s]	17.86	20.06	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	1.687	1.662	1.956	1.770
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	19.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	710	239	11	865	77	110	134	75	165	137	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	48	0	0	25	0	0	36	0	0	10
Total Hourly Volume [veh/h]	55	710	191	11	865	52	110	134	39	165	137	6
Peak Hour Factor	0.8400	0.8400	0.8400	0.9570	0.9570	0.9570	0.7450	0.7450	0.7450	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	211	57	3	226	14	37	45	13	45	37	2
Total Analysis Volume [veh/h]	65	845	227	11	904	54	148	180	52	180	149	7
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	17	32	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	50	50	2	46	46	9	7	7	10	9	9
g / C, Green / Cycle	0.07	0.59	0.59	0.02	0.54	0.54	0.10	0.08	0.08	0.12	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.14	0.01	0.25	0.03	0.08	0.05	0.03	0.10	0.04	0.00
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	118	2089	932	36	1926	860	186	295	132	218	359	160
d1, Uniform Delay [s]	38.57	9.55	8.49	41.14	12.03	9.29	37.27	37.74	37.04	36.50	35.94	34.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.01	0.58	0.62	4.60	0.82	0.14	7.56	2.03	1.91	7.73	0.77	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.40	0.24	0.30	0.47	0.06	0.80	0.61	0.39	0.83	0.41	0.04
d, Delay for Lane Group [s/veh]	42.58	10.13	9.11	45.74	12.85	9.43	44.83	39.77	38.95	44.23	36.71	34.70
Lane Group LOS	D	B	A	D	B	A	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.43	3.96	1.97	0.27	5.02	0.48	3.34	1.87	1.08	4.05	1.47	0.13
50th-Percentile Queue Length [ft/ln]	35.68	99.10	49.36	6.77	125.61	11.92	83.62	46.65	27.02	101.19	36.68	3.35
95th-Percentile Queue Length [veh/ln]	2.57	7.13	3.55	0.49	8.70	0.86	6.02	3.36	1.95	7.29	2.64	0.24
95th-Percentile Queue Length [ft/ln]	64.22	178.37	88.85	12.19	217.52	21.45	150.52	83.97	48.64	182.14	66.03	6.04

Movement, Approach, & Intersection Results

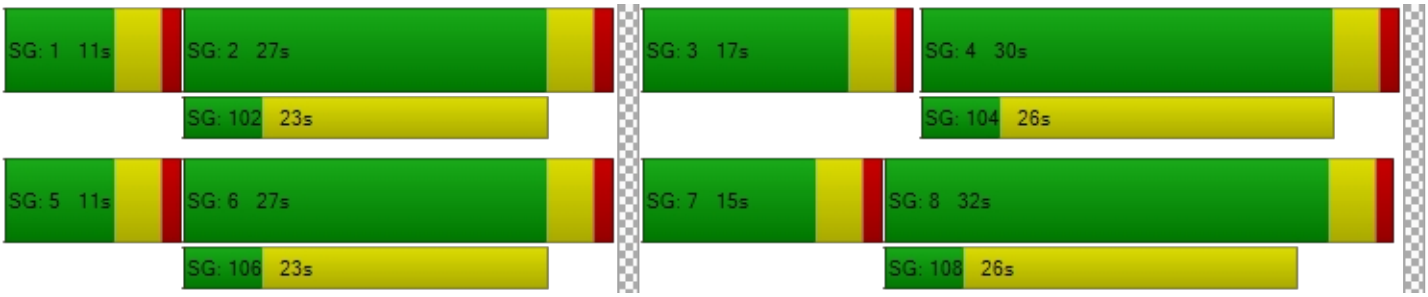
d_M, Delay for Movement [s/veh]	42.58	10.13	9.11	45.74	12.85	9.43	44.83	39.77	38.95	44.23	36.71	34.70
Movement LOS	D	B	A	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	11.78			13.04			41.63			40.70		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.67											
Intersection LOS	B											
Intersection V/C	0.442											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.903	2.813	2.618	2.598
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	541	541	659	612
d_b, Bicycle Delay [s]	22.61	22.61	19.11	20.48
l_b,int, Bicycle LOS Score for Intersection	2.537	2.380	1.903	1.845
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.375

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	0	30	791	3	0	27	766	135	103	41	37	8	48	31
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	19	0	0	13	0	0	19
Total Hourly Volume [veh/h]	0	30	791	3	0	27	766	116	103	41	24	8	48	12
Peak Hour Factor	0.89	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.7900	0.7900	0.7900	0.7330	0.7330	0.7330
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	220	1	0	8	222	34	33	13	8	3	16	4
Total Analysis Volume [veh/h]	0	33	882	3	0	31	887	134	130	52	30	11	65	16
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	11	21	0	0	11	21	0	13	32	0	11	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	43	43	3	43	43	7	11	11	1	6	6
g / C, Green / Cycle	0.05	0.57	0.57	0.04	0.57	0.57	0.09	0.15	0.15	0.02	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.02	0.25	0.00	0.02	0.25	0.08	0.07	0.03	0.02	0.01	0.03	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	84	2035	908	81	2028	905	166	281	238	36	144	122
d1, Uniform Delay [s]	34.73	9.17	6.91	34.83	9.27	7.60	33.32	27.91	27.66	36.29	33.16	32.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.92	0.67	0.01	2.96	0.69	0.35	7.86	0.32	0.23	4.78	2.21	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.43	0.00	0.38	0.44	0.15	0.78	0.19	0.13	0.31	0.45	0.13
d, Delay for Lane Group [s/veh]	37.65	9.84	6.91	37.79	9.96	7.95	41.18	28.23	27.89	41.07	35.37	32.81
Lane Group LOS	D	A	A	D	A	A	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.64	3.72	0.02	0.60	3.78	0.97	2.61	0.82	0.47	0.24	1.19	0.28
50th-Percentile Queue Length [ft/ln]	15.99	93.06	0.49	15.09	94.41	24.36	65.26	20.47	11.74	6.04	29.77	7.02
95th-Percentile Queue Length [veh/ln]	1.15	6.70	0.04	1.09	6.80	1.75	4.70	1.47	0.85	0.44	2.14	0.51
95th-Percentile Queue Length [ft/ln]	28.79	167.50	0.89	27.17	169.95	43.85	117.48	36.84	21.13	10.88	53.58	12.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.6	37.6	9.84	6.91	37.7	37.7	9.96	7.95	41.18	28.23	27.89	41.07	35.37	32.81
Movement LOS	D	D	A	A	D	D	A	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	10.83				10.52				36.12			35.61		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	14.05													
Intersection LOS	B													
Intersection V/C	0.375													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.747	2.816	2.258	2.199
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	453	453	747	693
d_b, Bicycle Delay [s]	22.43	22.43	14.73	16.01
l_b,int, Bicycle LOS Score for Intersection	2.290	2.418	1.931	1.743
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	902	1	0	0	745	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	902	1	0	0	745	1	0
Peak Hour Factor	0.8710	0.8710	0.8770	0.8770	0.8770	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	259	0	0	0	212	1	0
Total Analysis Volume [veh/h]	1036	1	0	0	849	4	0
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.03	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	20.17	10.40	0.00	35.56	12.67
Movement LOS	A	A	C	B	A	E	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	1.27	1.27
d_A, Approach Delay [s/veh]	0.00		0.00			35.56	
Approach LOS	A		A			E	
d_I, Intersection Delay [s/veh]	0.08						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.430

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	79	697	96	0	65	594	81	114	325	74	0	17	230	71
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	65	0	0	0	35	0	0	45	0	0	0	45
Total Hourly Volume [veh/h]	0	79	697	31	0	65	594	46	114	325	29	0	17	230	26
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.9770	0.9770	0.9770	0.91	0.91	0.91	0.91
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	22	198	9	0	19	170	13	29	83	7	0	5	63	7
Total Analysis Volume [veh/h]	0	90	793	35	0	75	682	53	117	333	30	0	19	251	28
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	36	0	0	11	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	47	47	6	47	47	7	16	16	4	4	14	14
g / C, Green / Cycle	0.07	0.52	0.52	0.07	0.52	0.52	0.07	0.18	0.18	0.05	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.02	0.04	0.13	0.03	0.03	0.09	0.02	0.01	0.01	0.13	0.02
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	126	1862	845	121	2645	825	258	664	292	89	89	300	255
d1, Uniform Delay [s]	41.01	13.20	10.49	40.94	12.03	10.78	39.96	33.11	30.64	41.2	41.2	36.8	32.5
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.32	0.72	0.09	5.04	0.24	0.15	1.24	0.59	0.15	1.19	1.19	6.13	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.43	0.04	0.62	0.26	0.06	0.45	0.50	0.10	0.21	0.21	0.84	0.11
d, Delay for Lane Group [s/veh]	48.33	13.91	10.58	45.98	12.26	10.93	41.21	33.70	30.80	42.3	42.3	42.9	32.7
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.19	4.78	0.34	1.77	2.45	0.53	1.27	3.27	0.55	0.43	0.43	5.78	0.53
50th-Percentile Queue Length [ft/ln]	54.71	119.61	8.60	44.30	61.22	13.34	31.82	81.86	13.73	10.7	10.7	144.	13.3
95th-Percentile Queue Length [veh/ln]	3.94	8.37	0.62	3.19	4.41	0.96	2.29	5.89	0.99	0.78	0.78	9.72	0.96
95th-Percentile Queue Length [ft/ln]	98.47	209.29	15.49	79.74	110.19	24.02	57.28	147.35	24.72	19.4	19.4	242.	23.9

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.3	48.3	13.9	10.5	45.9	45.9	12.2	10.9	41.21	33.70	30.80	42.3	42.3	42.9	32.7
Movement LOS	D	D	B	B	D	D	B	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	17.16				15.30				35.35			42.00			
Approach LOS	B				B				D			D			
d_I, Intersection Delay [s/veh]	23.14														
Intersection LOS	C														
Intersection V/C	0.430														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.933	3.000	2.792	2.657
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	711	711
d_b, Bicycle Delay [s]	21.36	22.76	18.69	18.69
l_b,int, Bicycle LOS Score for Intersection	2.371	1.983	1.993	2.094
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	16.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	6	487	34	57	675	24	12	30	6	36	34	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	10	0	0	2	0	0	10
Total Hourly Volume [veh/h]	6	487	30	57	675	14	12	30	4	36	34	35
Peak Hour Factor	0.8900	0.8900	0.8900	0.9510	0.9510	0.9510	0.8390	0.8390	0.8390	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	137	8	15	177	4	4	9	1	11	10	10
Total Analysis Volume [veh/h]	7	547	34	60	710	15	14	36	5	42	40	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	20	0	11	19	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	38	38	5	42	5	6
g / C, Green / Cycle	0.01	0.54	0.54	0.07	0.60	0.07	0.09
(v / s)_i Volume / Saturation Flow Rate	0.00	0.29	0.02	0.03	0.39	0.03	0.07
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1863	1818	1738
c, Capacity [veh/h]	26	1012	860	126	1113	123	162
d1, Uniform Delay [s]	34.25	10.46	7.57	31.38	9.33	31.50	31.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.42	2.07	0.09	2.76	2.97	2.55	7.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.54	0.04	0.48	0.65	0.45	0.76
d, Delay for Lane Group [s/veh]	39.67	12.54	7.65	34.14	12.30	34.04	38.30
Lane Group LOS	D	B	A	C	B	C	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.15	5.23	0.23	1.04	6.75	0.95	2.28
50th-Percentile Queue Length [ft/ln]	3.85	130.79	5.74	26.07	168.82	23.86	57.07
95th-Percentile Queue Length [veh/ln]	0.28	8.98	0.41	1.88	11.01	1.72	4.11
95th-Percentile Queue Length [ft/ln]	6.93	224.57	10.33	46.92	275.37	42.95	102.73

Movement, Approach, & Intersection Results

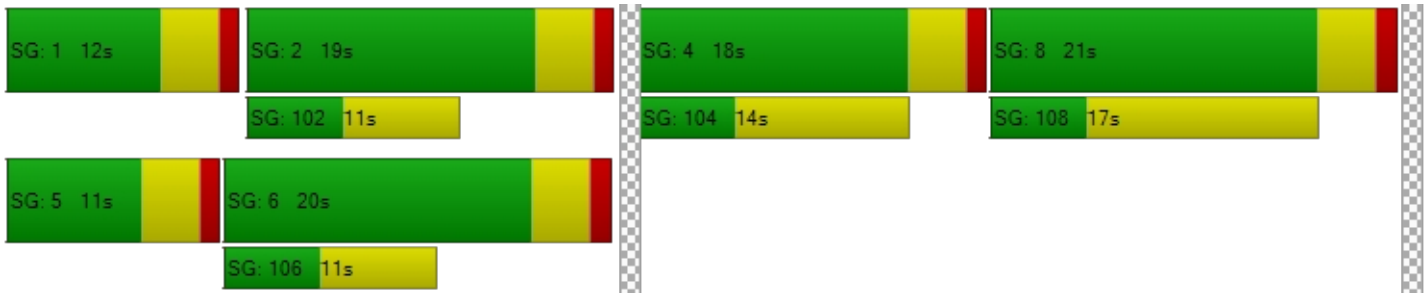
d_M, Delay for Movement [s/veh]	39.67	12.54	7.65	34.14	12.30	12.30	34.04	34.04	34.04	38.30	38.30	38.30
Movement LOS	D	B	A	C	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	12.58			13.97			34.04			38.30		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	16.08											
Intersection LOS	B											
Intersection V/C	0.494											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.455	2.401	1.769	1.848
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	429	486	400
d_b, Bicycle Delay [s]	20.83	21.61	20.06	22.40
l_b,int, Bicycle LOS Score for Intersection	2.536	2.871	1.654	1.779
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	35.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	448	46	12	593	71	94	238	77	60	91	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	16	0	0	16	0	0	30	0	0	5
Total Hourly Volume [veh/h]	60	448	30	12	593	55	94	238	47	60	91	11
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	137	9	3	166	15	26	67	13	20	30	4
Total Analysis Volume [veh/h]	74	549	37	13	665	62	106	268	53	79	120	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	39	0	11	39	0	11	22	0	13	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	39	2	35	6	23	6	22
g / C, Green / Cycle	0.07	0.45	0.02	0.41	0.08	0.27	0.07	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.01	0.39	0.06	0.18	0.04	0.07
s, saturation flow rate [veh/h]	1781	1879	1810	1872	1810	1817	1781	1834
c, Capacity [veh/h]	121	849	40	759	137	487	124	481
d1, Uniform Delay [s]	38.51	18.56	40.96	24.55	38.57	27.66	38.49	24.99
k, delay calibration	0.11	0.21	0.11	0.39	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.86	1.95	4.68	20.33	8.88	6.83	5.29	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.69	0.33	0.96	0.77	0.66	0.64	0.28
d, Delay for Lane Group [s/veh]	43.37	20.51	45.64	44.88	47.46	34.49	43.78	26.44
Lane Group LOS	D	C	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.64	9.01	0.32	17.52	2.47	6.55	1.76	2.32
50th-Percentile Queue Length [ft/ln]	41.01	225.14	7.91	437.88	61.78	163.65	44.01	57.90
95th-Percentile Queue Length [veh/ln]	2.95	13.93	0.57	24.38	4.45	10.74	3.17	4.17
95th-Percentile Queue Length [ft/ln]	73.82	348.18	14.24	609.47	111.21	268.55	79.21	104.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.37	20.51	20.51	45.64	44.88	44.88	47.46	34.49	34.49	43.78	26.44	26.44
Movement LOS	D	C	C	D	D	D	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	23.07			44.89			37.71			32.84		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	35.07											
Intersection LOS	D											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.450	2.600	2.218	2.126
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	824	824	424	471
d_b, Bicycle Delay [s]	14.71	14.71	26.41	24.85
l_b,int, Bicycle LOS Score for Intersection	2.675	2.807	2.314	1.921
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	902	0	0	745	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	902	0	0	745	0	0
Peak Hour Factor	0.8710	1.0000	1.0000	0.8770	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	259	0	0	212	0	0
Total Analysis Volume [veh/h]	1036	0	0	849	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.16
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		12.16	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1	1	0
Peak Hour Factor	0.9000	0.9000	0.2500	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	1	0
Total Analysis Volume [veh/h]	0	0	0	4	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	8.33	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.44		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	46	998	16	12	835	112	108	3	42	11	5	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	35	0	0	18	0	0	3
Total Hourly Volume [veh/h]	46	998	11	12	835	77	108	3	24	11	5	4
Peak Hour Factor	0.8880	0.8880	0.8880	0.8840	0.8840	0.8840	0.8550	0.8550	0.8550	0.5750	0.5750	0.5750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	281	3	3	236	22	32	1	7	5	2	2
Total Analysis Volume [veh/h]	52	1124	12	14	945	87	126	4	28	19	9	7
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	37	0	16	35	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	54	54	2	51	51	13	13	13	13
g / C, Green / Cycle	0.06	0.67	0.67	0.02	0.63	0.63	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.35	0.01	0.01	0.29	0.06	0.10	0.02	0.02	0.01
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1257	1458	1239	1562
c, Capacity [veh/h]	97	2145	958	38	2028	905	241	229	226	245
d1, Uniform Delay [s]	36.51	6.73	4.41	38.47	7.64	5.74	34.42	29.09	32.19	28.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.58	0.92	0.02	5.81	0.77	0.21	1.75	0.28	0.16	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.52	0.01	0.37	0.47	0.10	0.52	0.14	0.08	0.07
d, Delay for Lane Group [s/veh]	41.10	7.65	4.43	44.27	8.42	5.95	36.17	29.36	32.35	28.85
Lane Group LOS	D	A	A	D	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.09	4.14	0.06	0.33	3.76	0.54	2.45	0.54	0.34	0.26
50th-Percentile Queue Length [ft/ln]	27.27	103.61	1.51	8.18	93.95	13.56	61.25	13.40	8.39	6.59
95th-Percentile Queue Length [veh/ln]	1.96	7.46	0.11	0.59	6.76	0.98	4.41	0.96	0.60	0.47
95th-Percentile Queue Length [ft/ln]	49.08	186.50	2.72	14.72	169.11	24.42	110.24	24.12	15.11	11.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.10	7.65	4.43	44.27	8.42	5.95	36.17	29.36	29.36	32.35	28.85	28.85
Movement LOS	D	A	A	D	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.08			8.69			34.79			30.75		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	10.90											
Intersection LOS	B											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.841	3.058	2.078	1.964
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	825	775	575	575
d_b, Bicycle Delay [s]	13.81	15.01	20.31	20.31
l_b,int, Bicycle LOS Score for Intersection	2.544	2.451	1.850	1.622
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

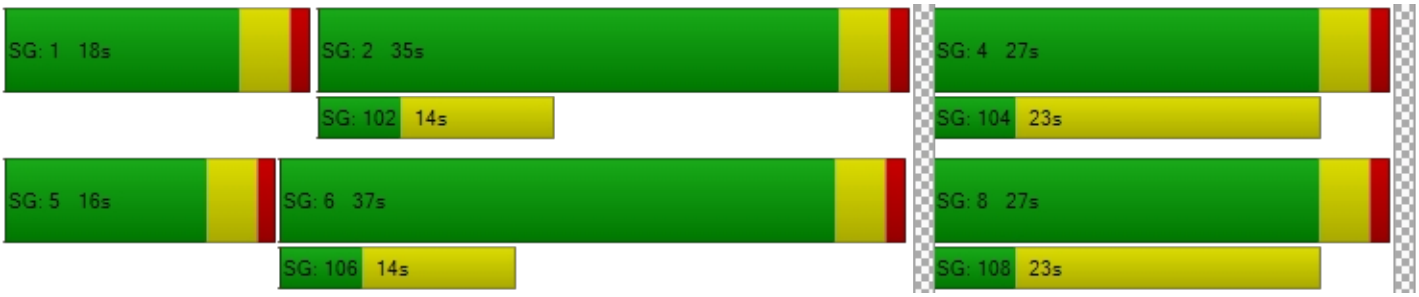


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Moreno Valley Elementary School

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Scenario 7 Existing+P AM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.417	23.9	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.473	26.0	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	NB Left	0.670	28.9	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.615	22.7	C
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.195	218.8	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	SB Left	0.548	30.5	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.587	23.4	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	SB Thru	0.611	34.8	C
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	WB Right	0.558	18.6	C
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	EB Left	0.320	8.3	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.686	22.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	23.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.417

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	300	50	57	251	68	27	168	37	57	287	72
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	16	0	0	29	0	0	12	0	0	9
Total Hourly Volume [veh/h]	83	300	34	57	251	39	27	168	25	57	287	63
Peak Hour Factor	0.8230	0.8230	0.8230	0.8070	0.8070	0.8070	0.7500	0.7500	0.7500	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	91	10	18	78	12	9	56	8	18	92	20
Total Analysis Volume [veh/h]	101	365	41	71	311	48	36	224	33	73	368	81
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	25	0	11	23	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	32	32	5	31	31	4	12	5	14	14
g / C, Green / Cycle	0.09	0.45	0.45	0.08	0.44	0.44	0.05	0.17	0.08	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.06	0.20	0.03	0.04	0.17	0.03	0.02	0.14	0.04	0.12	0.12
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1829	1781	1870	1755
c, Capacity [veh/h]	156	836	711	137	816	694	93	312	138	366	344
d1, Uniform Delay [s]	31.00	13.34	11.02	31.18	13.38	11.51	32.19	28.12	31.16	25.91	25.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.45	1.66	0.15	3.03	1.35	0.19	2.58	5.47	3.09	1.78	1.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.44	0.06	0.52	0.38	0.07	0.39	0.82	0.53	0.63	0.64
d, Delay for Lane Group [s/veh]	35.45	14.99	11.17	34.21	14.74	11.70	34.77	33.59	34.25	27.69	27.92
Lane Group LOS	D	B	B	C	B	B	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.79	3.94	0.36	1.23	3.31	0.44	0.64	4.45	1.27	3.54	3.39
50th-Percentile Queue Length [ft/ln]	44.71	98.55	9.02	30.83	82.80	10.90	16.00	111.18	31.70	88.45	84.67
95th-Percentile Queue Length [veh/ln]	3.22	7.10	0.65	2.22	5.96	0.78	1.15	7.91	2.28	6.37	6.10
95th-Percentile Queue Length [ft/ln]	80.49	177.39	16.23	55.49	149.05	19.62	28.80	197.64	57.07	159.21	152.40

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.45	14.99	11.17	34.21	14.74	11.70	34.77	33.59	33.59	34.25	27.78	27.92
Movement LOS	D	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	18.76			17.61			33.74			28.70		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	23.95											
Intersection LOS	C											
Intersection V/C	0.417											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.375	2.393	2.344	2.348
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	543	543	543
d_b, Bicycle Delay [s]	17.15	18.58	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.423	2.317	2.063	1.998
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	192	105	86	148	73	71	260	11	73	293	122
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	14	0	0	18	0	0	4	0	0	24
Total Hourly Volume [veh/h]	28	192	91	86	148	55	71	260	7	73	293	98
Peak Hour Factor	0.6600	0.6600	0.6600	0.8380	0.8380	0.8380	0.6310	0.6310	0.6310	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	73	34	26	44	16	28	103	3	29	116	39
Total Analysis Volume [veh/h]	42	291	138	103	177	66	113	412	11	116	465	156
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	27	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	24	24	6	26	26	6	18	6	18	18
g / C, Green / Cycle	0.06	0.34	0.34	0.09	0.37	0.37	0.09	0.26	0.09	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.12	0.06	0.07	0.07	0.06	0.23	0.07	0.17	0.17
s, saturation flow rate [veh/h]	1781	1870	1672	1781	1870	1702	1781	1861	1781	1870	1712
c, Capacity [veh/h]	103	629	562	157	686	624	161	478	162	481	440
d1, Uniform Delay [s]	31.93	17.57	17.64	31.00	15.10	15.14	31.02	25.12	31.04	23.44	23.46
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.56	1.57	1.83	4.59	0.58	0.67	5.43	5.67	5.75	1.64	1.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.36	0.37	0.66	0.18	0.19	0.70	0.89	0.71	0.67	0.68
d, Delay for Lane Group [s/veh]	34.49	19.14	19.47	35.59	15.69	15.82	36.46	30.79	36.80	25.08	25.28
Lane Group LOS	C	B	B	D	B	B	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.74	2.82	2.63	1.83	1.37	1.31	2.03	7.10	2.10	4.75	4.40
50th-Percentile Queue Length [ft/ln]	18.49	70.42	65.87	45.71	34.33	32.82	50.87	177.53	52.51	118.78	109.89
95th-Percentile Queue Length [veh/ln]	1.33	5.07	4.74	3.29	2.47	2.36	3.66	11.47	3.78	8.33	7.83
95th-Percentile Queue Length [ft/ln]	33.28	126.75	118.57	82.28	61.79	59.08	91.56	286.79	94.51	208.14	195.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.49	19.22	19.47	35.59	15.72	15.82	36.46	30.79	30.79	36.80	25.14	25.28
Movement LOS	C	B	B	D	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	20.65			21.66			31.99			27.00		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.97											
Intersection LOS	C											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.463	2.499	2.401	2.502
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	657	571
d_b, Bicycle Delay [s]	20.06	20.06	15.78	17.86
l_b,int, Bicycle LOS Score for Intersection	1.960	1.860	2.451	2.187
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	28.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	680	157	9	1082	86	204	185	224	138	118	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	31	0	0	28	0	0	108	0	0	13
Total Hourly Volume [veh/h]	83	680	126	9	1082	58	204	185	116	138	118	8
Peak Hour Factor	0.8440	0.8440	0.8440	0.7930	0.7930	0.7930	0.6080	0.6080	0.6080	0.7620	0.7620	0.7620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	201	37	3	341	18	84	76	48	45	39	3
Total Analysis Volume [veh/h]	98	806	149	11	1364	73	336	304	191	181	155	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	27	42	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	50	50	2	46	46	20	16	16	11	7	7
g / C, Green / Cycle	0.07	0.53	0.53	0.02	0.48	0.48	0.21	0.17	0.17	0.12	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.09	0.01	0.38	0.05	0.19	0.09	0.12	0.10	0.04	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	126	1883	841	35	1702	760	373	593	265	207	262	117
d1, Uniform Delay [s]	43.48	13.65	11.65	45.99	21.01	13.59	36.65	36.13	37.55	41.35	42.69	41.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.16	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.83	0.71	0.46	4.88	4.08	0.25	10.97	0.69	3.69	10.87	2.12	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.43	0.18	0.31	0.80	0.10	0.90	0.51	0.72	0.87	0.59	0.09
d, Delay for Lane Group [s/veh]	53.30	14.36	12.11	50.87	25.09	13.84	47.62	36.81	41.24	52.22	44.82	41.40
Lane Group LOS	D	B	B	D	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.59	5.14	1.67	0.30	12.98	0.88	8.59	3.24	4.43	4.75	1.83	0.23
50th-Percentile Queue Length [ft/ln]	64.79	128.62	41.81	7.57	324.38	22.11	214.87	80.95	110.67	118.70	45.68	5.68
95th-Percentile Queue Length [veh/ln]	4.66	8.86	3.01	0.54	18.88	1.59	13.40	5.83	7.88	8.32	3.29	0.41
95th-Percentile Queue Length [ft/ln]	116.62	221.62	75.26	13.62	472.07	39.80	335.07	145.70	196.93	208.04	82.22	10.23

Movement, Approach, & Intersection Results

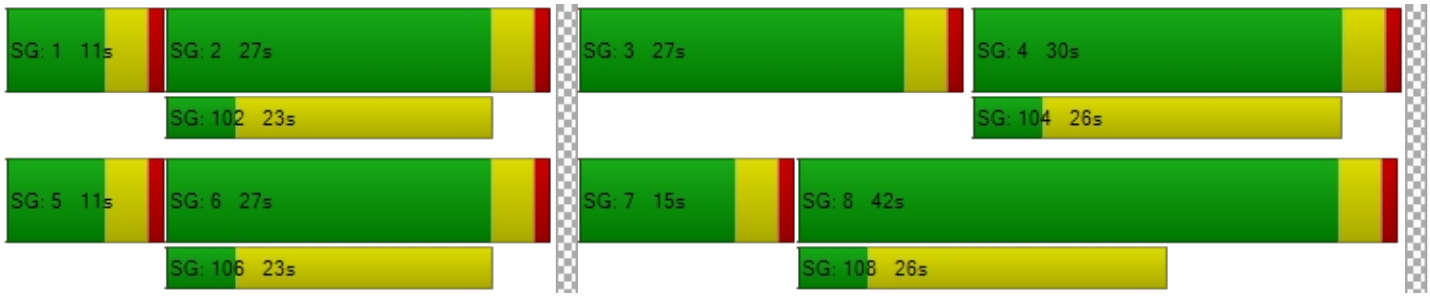
d_M, Delay for Movement [s/veh]	53.30	14.36	12.11	50.87	25.09	13.84	47.62	36.81	41.24	52.22	44.82	41.40
Movement LOS	D	B	B	D	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	17.67			24.72			42.20			48.59		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	28.90											
Intersection LOS	C											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	2.977	2.926	2.821	2.614
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	484	484	800	547
d_b, Bicycle Delay [s]	27.28	27.28	17.10	25.06
l_b,int, Bicycle LOS Score for Intersection	2.454	2.777	2.334	1.856
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	59	133	752	63	0	33	998	132	113	58	146	75	58	87
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	18	0	0	53	0	0	53
Total Hourly Volume [veh/h]	59	133	752	63	0	33	998	114	113	58	93	75	58	34
Peak Hour Factor	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.7840	0.7840	0.7840	0.6980	0.6980	0.6980
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	40	228	19	0	10	311	35	36	18	30	27	21	12
Total Analysis Volume [veh/h]	72	161	913	76	0	41	1243	142	144	74	119	107	83	49
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	16	26	0	0	11	21	0	13	30	0	13	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	45	45	4	37	37	8	8	8	6	7	7
g / C, Green / Cycle	0.15	0.56	0.56	0.05	0.47	0.47	0.10	0.10	0.10	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.13	0.26	0.05	0.02	0.35	0.09	0.08	0.04	0.07	0.06	0.04	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	268	1996	891	96	1653	738	181	196	167	144	157	134
d1, Uniform Delay [s]	33.30	10.41	8.13	36.74	17.69	12.64	35.20	33.45	34.72	36.06	35.22	34.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.45	0.76	0.19	2.97	3.21	0.58	7.64	1.19	5.53	7.38	2.74	1.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.46	0.09	0.43	0.75	0.19	0.79	0.38	0.71	0.74	0.53	0.37
d, Delay for Lane Group [s/veh]	41.76	11.17	8.32	39.71	20.90	13.22	42.84	34.64	40.26	43.44	37.95	36.40
Lane Group LOS	D	B	A	D	C	B	D	C	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.93	4.42	0.59	0.84	9.34	1.52	3.07	1.38	2.45	2.30	1.64	0.95
50th-Percentile Queue Length [ft/ln]	123.13	110.38	14.83	21.06	233.47	38.09	76.67	34.46	61.23	57.42	41.01	23.69
95th-Percentile Queue Length [veh/ln]	8.56	7.86	1.07	1.52	14.35	2.74	5.52	2.48	4.41	4.13	2.95	1.71
95th-Percentile Queue Length [ft/ln]	214.12	196.53	26.70	37.91	358.77	68.57	138.01	62.02	110.22	103.36	73.82	42.64

Movement, Approach, & Intersection Results

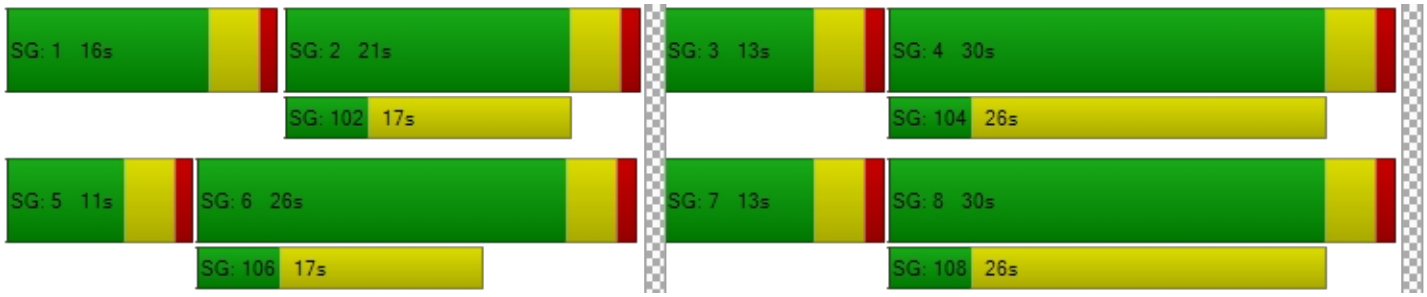
d_M, Delay for Movement [s/veh]	41.7	41.7	11.1	8.32	39.7	39.7	20.9	13.2	42.84	34.64	40.26	43.44	37.95	36.40
Movement LOS	D	D	B	A	D	D	C	B	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	16.82				20.68				40.13			40.09		
Approach LOS	B				C				D			D		
d_I, Intersection Delay [s/veh]	22.69													
Intersection LOS	C													
Intersection V/C	0.615													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.894	2.897	2.396	2.320
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	425	650	650
d_b, Bicycle Delay [s]	21.03	24.81	18.23	18.23
l_b,int, Bicycle LOS Score for Intersection	2.435	2.717	2.203	2.041
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	218.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.195

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	753	35	52	225	998	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	753	35	52	225	998	2	2
Peak Hour Factor	0.8650	0.8650	0.8200	0.8200	0.8200	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	218	10	16	69	304	1	1
Total Analysis Volume [veh/h]	871	40	63	274	1217	4	4
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.21	0.37	0.01	0.19	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	24.82	17.84	0.00	218.83	11.38
Movement LOS	A	A	C	C	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	3.64	3.64	0.00	0.30	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	91.01	91.01	0.00	7.38	0.53
d_A, Approach Delay [s/veh]	0.00		4.15			115.10	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	2.98						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.548

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	81	540	29	0	87	780	127	84	186	94	0	113	395	167
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	20	0	0	0	55	0	0	57	0	0	0	105
Total Hourly Volume [veh/h]	0	81	540	9	0	87	780	72	84	186	37	0	113	395	62
Peak Hour Factor	0.87	0.87	0.87	0.87	0.75	0.75	0.75	0.75	0.7940	0.7940	0.7940	0.78	0.78	0.78	0.78
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	23	155	3	0	29	257	24	26	59	12	0	36	125	20
Total Analysis Volume [veh/h]	0	93	620	10	0	115	1028	95	106	234	47	0	143	501	79
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	33	0	0	14	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	35	35	7	35	35	7	23	23	9	9	26	26
g / C, Green / Cycle	0.07	0.38	0.38	0.08	0.39	0.39	0.07	0.26	0.26	0.10	0.10	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.01	0.06	0.20	0.06	0.03	0.06	0.03	0.08	0.08	0.26	0.05
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	127	1362	618	142	1985	619	254	941	413	184	184	548	465
d1, Uniform Delay [s]	41.03	20.82	17.31	40.88	21.04	17.86	39.94	26.39	25.44	39.5	39.5	31.0	24.0
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.26	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.86	1.10	0.05	10.30	0.97	0.53	1.10	0.14	0.12	6.98	6.98	13.5	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.46	0.02	0.81	0.52	0.15	0.42	0.25	0.11	0.78	0.78	0.91	0.17
d, Delay for Lane Group [s/veh]	48.90	21.92	17.35	51.18	22.01	18.39	41.04	26.53	25.56	46.5	46.5	44.5	24.1
Lane Group LOS	D	C	B	D	C	B	D	C	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.28	4.92	0.13	2.89	5.49	1.34	1.15	1.97	0.77	3.40	3.40	12.2	1.26
50th-Percentile Queue Length [ft/ln]	56.91	123.03	3.36	72.14	137.22	33.51	28.74	49.31	19.27	85.0	85.0	305.	31.5
95th-Percentile Queue Length [veh/ln]	4.10	8.56	0.24	5.19	9.33	2.41	2.07	3.55	1.39	6.12	6.12	17.9	2.27
95th-Percentile Queue Length [ft/ln]	102.43	213.99	6.06	129.86	233.28	60.31	51.73	88.76	34.68	153.	153.	448.	56.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.9	48.9	21.9	17.3	51.1	51.1	22.0	18.3	41.04	26.53	25.56	46.5	46.5	44.5	24.1
Movement LOS	D	D	C	B	D	D	C	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	25.33				24.44				30.38			43.36			
Approach LOS	C				C				C			D			
d_I, Intersection Delay [s/veh]	30.45														
Intersection LOS	C														
Intersection V/C	0.548														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.905	3.074	2.842	2.800
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	644	711
d_b, Bicycle Delay [s]	21.36	22.76	20.67	18.69
l_b,int, Bicycle LOS Score for Intersection	2.173	2.208	1.926	2.690
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	520	34	24	402	46	27	60	20	43	96	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	19	0	0	8	0	0	10
Total Hourly Volume [veh/h]	4	520	30	24	402	27	27	60	12	43	96	35
Peak Hour Factor	0.8040	0.8040	0.8040	0.8530	0.8530	0.8530	0.7630	0.7630	0.7630	0.6340	0.6340	0.6340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	162	9	7	118	8	9	20	4	17	38	14
Total Analysis Volume [veh/h]	5	647	37	28	471	32	35	79	16	68	151	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	20	0	11	19	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	32	32	3	34	7	13
g / C, Green / Cycle	0.01	0.46	0.46	0.04	0.49	0.09	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.35	0.02	0.02	0.27	0.07	0.15
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1849	1806	1785
c, Capacity [veh/h]	18	850	723	77	902	171	320
d1, Uniform Delay [s]	34.45	15.94	10.67	32.62	12.64	30.98	27.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.95	6.36	0.13	2.88	2.49	6.85	6.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.76	0.05	0.36	0.56	0.76	0.86
d, Delay for Lane Group [s/veh]	42.40	22.30	10.81	35.50	15.13	37.84	34.40
Lane Group LOS	D	C	B	D	B	D	C
Critical Lane Group	No	Yes	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.12	9.12	0.32	0.51	5.50	2.39	4.82
50th-Percentile Queue Length [ft/ln]	3.06	228.01	7.97	12.74	137.55	59.78	120.46
95th-Percentile Queue Length [veh/ln]	0.22	14.07	0.57	0.92	9.35	4.30	8.42
95th-Percentile Queue Length [ft/ln]	5.50	351.83	14.34	22.92	233.73	107.60	210.46

Movement, Approach, & Intersection Results

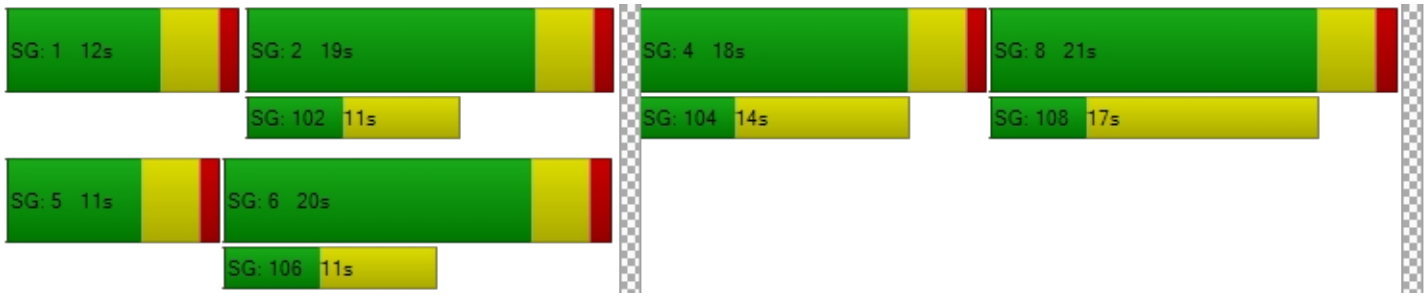
d_M, Delay for Movement [s/veh]	42.40	22.30	10.81	35.50	15.13	15.13	37.84	37.84	37.84	34.40	34.40	34.40
Movement LOS	D	C	B	D	B	B	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	21.83			16.20			37.84			34.40		
Approach LOS	C			B			D			C		
d_I, Intersection Delay [s/veh]	23.39											
Intersection LOS	C											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.432	2.378	1.883	1.929
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	429	486	400
d_b, Bicycle Delay [s]	20.83	21.61	20.06	22.40
l_b,int, Bicycle LOS Score for Intersection	2.703	2.467	1.787	2.028
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.611

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	132	508	33	24	392	104	72	123	68	46	258	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	11	0	0	23	0	0	27	0	0	3
Total Hourly Volume [veh/h]	132	508	22	24	392	81	72	123	41	46	258	7
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	156	7	7	110	23	20	35	12	15	85	2
Total Analysis Volume [veh/h]	162	623	27	27	439	91	81	139	46	61	340	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	28	0	12	18	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	29	3	23	6	22	5	22
g / C, Green / Cycle	0.11	0.38	0.04	0.31	0.08	0.30	0.07	0.29
(v / s)_i Volume / Saturation Flow Rate	0.09	0.34	0.01	0.29	0.04	0.10	0.03	0.19
s, saturation flow rate [veh/h]	1781	1886	1810	1844	1810	1791	1781	1862
c, Capacity [veh/h]	204	718	73	565	138	535	120	539
d1, Uniform Delay [s]	32.36	21.97	35.07	25.33	33.51	20.59	33.79	23.30
k, delay calibration	0.11	0.35	0.11	0.24	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.87	12.93	3.08	15.25	3.91	1.77	3.30	5.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.91	0.37	0.94	0.59	0.35	0.51	0.65
d, Delay for Lane Group [s/veh]	39.23	34.90	38.14	40.58	37.42	22.36	37.08	29.21
Lane Group LOS	D	C	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.16	12.51	0.53	10.99	1.54	2.69	1.16	6.01
50th-Percentile Queue Length [ft/ln]	79.09	312.70	13.29	274.70	38.45	67.13	28.89	150.21
95th-Percentile Queue Length [veh/ln]	5.69	18.31	0.96	16.42	2.77	4.83	2.08	10.03
95th-Percentile Queue Length [ft/ln]	142.37	457.71	23.92	410.61	69.20	120.84	51.99	250.71

Movement, Approach, & Intersection Results

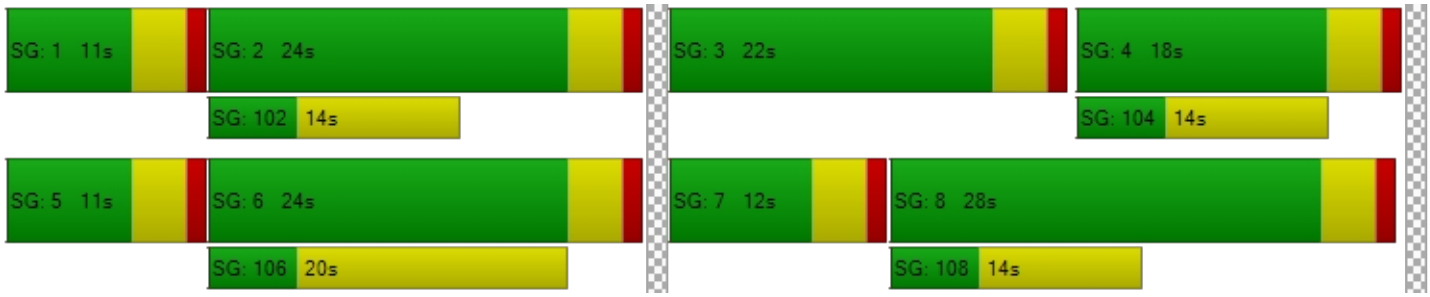
d_M, Delay for Movement [s/veh]	39.23	34.90	34.90	38.14	40.58	40.58	37.42	22.36	22.36	37.08	29.21	29.21
Movement LOS	D	C	C	D	D	D	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	35.77			40.46			26.94			30.38		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	34.82											
Intersection LOS	C											
Intersection V/C	0.611											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.402	2.578	2.266	2.137
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	373	533	533
d_b, Bicycle Delay [s]	17.34	24.81	20.17	20.17
l_b,int, Bicycle LOS Score for Intersection	2.918	2.517	2.043	2.241
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.558

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	721	0	0	1274	0	293
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	721	0	0	1274	0	293
Peak Hour Factor	0.8650	1.0000	1.0000	0.8200	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	208	0	0	388	0	81
Total Analysis Volume [veh/h]	834	0	0	1554	0	326
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.56
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	18.64
Movement LOS	A			A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.42
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	85.49
d_A, Approach Delay [s/veh]	0.00		0.00		18.64	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.24					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.320

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	258	2	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	258	2	4	0
Peak Hour Factor	0.9000	0.9000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	129	1	2	0
Total Analysis Volume [veh/h]	0	0	516	4	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.32	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	25.89	8.35	8.28	0.00	0.00	0.00
Movement LOS	D	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.40	1.40	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	34.95	34.95	0.00	0.00
d_A, Approach Delay [s/veh]	17.12		8.22		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.09					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.686

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	232	884	11	10	1047	234	130	9	115	28	23	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	73	0	0	48	0	0	4
Total Hourly Volume [veh/h]	232	884	8	10	1047	161	130	9	67	28	23	5
Peak Hour Factor	0.7880	0.7880	0.7880	0.8820	0.8820	0.8820	0.8150	0.8150	0.8150	0.5180	0.5180	0.5180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	280	3	3	297	46	40	3	21	14	11	2
Total Analysis Volume [veh/h]	294	1122	10	11	1187	183	160	11	82	54	44	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	32	0	11	25	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	41	41	1	29	29	15	15	15	15
g / C, Green / Cycle	0.20	0.59	0.59	0.02	0.41	0.41	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.18	0.35	0.01	0.01	0.37	0.13	0.13	0.06	0.05	0.03
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1215	1456	1173	1630
c, Capacity [veh/h]	321	1895	846	32	1317	588	296	317	258	354
d1, Uniform Delay [s]	27.43	8.99	5.88	33.88	19.29	13.93	28.49	22.91	27.62	22.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.42	1.37	0.03	6.43	10.14	1.38	1.53	0.51	0.40	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.59	0.01	0.35	0.90	0.31	0.54	0.29	0.21	0.15
d, Delay for Lane Group [s/veh]	37.85	10.36	5.91	40.31	29.43	15.30	30.02	23.42	28.02	22.38
Lane Group LOS	D	B	A	D	C	B	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	5.49	4.74	0.06	0.24	9.94	2.03	2.60	1.27	0.82	0.71
50th-Percentile Queue Length [ft/ln]	137.28	118.40	1.43	5.89	248.62	50.64	65.11	31.73	20.49	17.69
95th-Percentile Queue Length [veh/ln]	9.33	8.31	0.10	0.42	15.12	3.65	4.69	2.28	1.48	1.27
95th-Percentile Queue Length [ft/ln]	233.36	207.63	2.57	10.61	377.92	91.15	117.21	57.11	36.88	31.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.85	10.36	5.91	40.31	29.43	15.30	30.02	23.42	23.42	28.02	22.38	22.38
Movement LOS	D	B	A	D	C	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.00			27.65			27.59			25.20		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	22.31											
Intersection LOS	C											
Intersection V/C	0.686											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.978	3.220	2.288	1.983
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	600	657	657
d_b, Bicycle Delay [s]	12.60	17.15	15.78	15.78
l_b,int, Bicycle LOS Score for Intersection	2.739	2.759	2.056	1.744
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

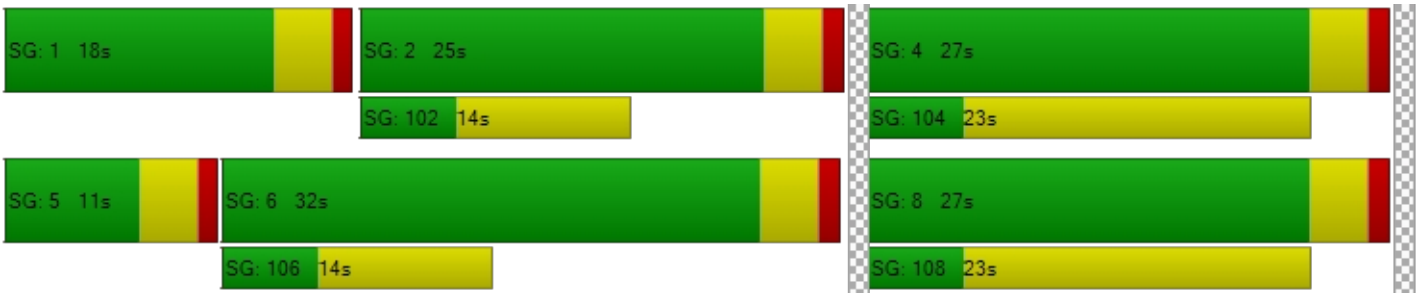


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Moreno Valley Elementary School

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Scenario 8 Existing+P PM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	SB Left	0.323	20.5	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.194	24.5	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	SB Left	0.449	19.9	B
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.409	15.4	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.050	51.1	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.437	23.3	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.509	17.0	B
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	EB Left	0.655	35.3	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	WB Right	0.185	13.8	B
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	EB Left	0.146	7.6	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.466	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.323

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	276	22	21	217	23	19	164	74	21	137	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	7	0	0	10	0	0	24	0	0	2
Total Hourly Volume [veh/h]	41	276	15	21	217	13	19	164	50	21	137	16
Peak Hour Factor	0.9270	0.9270	0.9270	0.9360	0.9360	0.9360	0.8650	0.8650	0.8650	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	74	4	6	58	3	5	47	14	6	39	5
Total Analysis Volume [veh/h]	44	298	16	22	232	14	22	190	58	24	157	18
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	24	0	12	25	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	37	37	3	36	36	3	12	3	12	12
g / C, Green / Cycle	0.06	0.53	0.53	0.04	0.51	0.51	0.04	0.17	0.04	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.01	0.01	0.12	0.01	0.01	0.14	0.01	0.05	0.05
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1796	1781	1870	1804
c, Capacity [veh/h]	106	986	838	66	943	802	66	303	70	320	309
d1, Uniform Delay [s]	31.85	9.34	7.93	32.99	9.84	8.70	32.99	28.17	32.86	25.32	25.35
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.57	0.79	0.04	2.95	0.62	0.04	2.95	5.43	2.85	0.46	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.30	0.02	0.33	0.25	0.02	0.33	0.82	0.34	0.28	0.28
d, Delay for Lane Group [s/veh]	34.42	10.13	7.97	35.94	10.47	8.74	35.94	33.60	35.71	25.78	25.84
Lane Group LOS	C	B	A	D	B	A	D	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.77	2.44	0.11	0.41	1.94	0.10	0.41	4.29	0.44	1.27	1.25
50th-Percentile Queue Length [ft/ln]	19.32	61.05	2.78	10.20	48.58	2.60	10.20	107.27	11.03	31.70	31.36
95th-Percentile Queue Length [veh/ln]	1.39	4.40	0.20	0.73	3.50	0.19	0.73	7.69	0.79	2.28	2.26
95th-Percentile Queue Length [ft/ln]	34.78	109.89	5.01	18.36	87.44	4.67	18.36	192.20	19.85	57.07	56.45

Movement, Approach, & Intersection Results

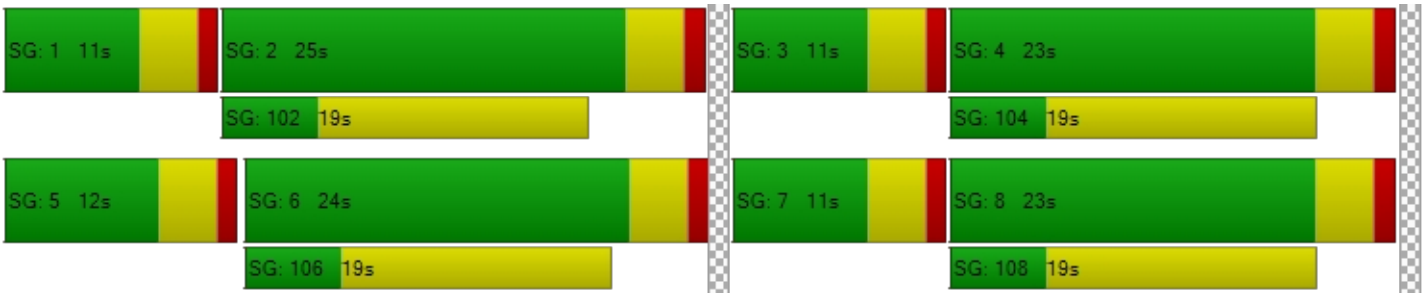
d_M, Delay for Movement [s/veh]	34.42	10.13	7.97	35.94	10.47	8.74	35.94	33.60	33.60	35.71	25.81	25.84
Movement LOS	C	B	A	D	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.02			12.47			33.79			27.01		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.55											
Intersection LOS	C											
Intersection V/C	0.323											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.301	2.285	2.281	2.229
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	600	543	543
d_b, Bicycle Delay [s]	17.86	17.15	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.162	2.018	2.045	1.725
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.194

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	100	31	22	71	18	26	174	9	28	178	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	3	0	0	4
Total Hourly Volume [veh/h]	7	100	27	22	71	13	26	174	6	28	178	16
Peak Hour Factor	0.8620	0.8620	0.8620	0.8550	0.8550	0.8550	0.8180	0.8180	0.8180	0.8020	0.8020	0.8020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	29	8	6	21	4	8	53	2	9	55	5
Total Analysis Volume [veh/h]	8	116	31	26	83	15	32	213	7	35	222	20
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	24	0	11	21	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	37	37	3	39	39	3	10	4	11	11
g / C, Green / Cycle	0.02	0.53	0.53	0.04	0.56	0.56	0.05	0.15	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.04	0.04	0.01	0.03	0.03	0.02	0.12	0.02	0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1739	1781	1870	1774	1781	1860	1781	1870	1817
c, Capacity [veh/h]	29	992	923	74	1040	986	86	276	92	283	275
d1, Uniform Delay [s]	34.15	8.06	8.08	32.73	7.11	7.11	32.39	28.90	32.24	27.07	27.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.02	0.15	0.17	2.78	0.09	0.09	2.63	5.27	2.59	1.04	1.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.07	0.08	0.35	0.05	0.05	0.37	0.80	0.38	0.43	0.44
d, Delay for Lane Group [s/veh]	39.16	8.20	8.24	35.51	7.19	7.21	35.02	34.17	34.83	28.10	28.19
Lane Group LOS	D	A	A	D	A	A	D	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.17	0.52	0.51	0.47	0.31	0.31	0.57	3.83	0.62	1.86	1.84
50th-Percentile Queue Length [ft/ln]	4.29	13.03	12.85	11.86	7.86	7.80	14.34	95.69	15.59	46.56	46.03
95th-Percentile Queue Length [veh/ln]	0.31	0.94	0.93	0.85	0.57	0.56	1.03	6.89	1.12	3.35	3.31
95th-Percentile Queue Length [ft/ln]	7.71	23.45	23.13	21.35	14.15	14.04	25.82	172.24	28.05	83.82	82.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.16	8.22	8.24	35.51	7.20	7.21	35.02	34.17	34.17	34.83	28.14	28.19
Movement LOS	D	A	A	D	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.82			13.14			34.28			28.99		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	24.53											
Intersection LOS	C											
Intersection V/C	0.194											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.350	2.355	2.247	2.261
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	486	571	571
d_b, Bicycle Delay [s]	17.86	20.06	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	1.691	1.666	1.980	1.791
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.449

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	718	243	11	873	77	110	134	79	169	137	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	49	0	0	25	0	0	38	0	0	10
Total Hourly Volume [veh/h]	59	718	194	11	873	52	110	134	41	169	137	6
Peak Hour Factor	0.8400	0.8400	0.8400	0.9570	0.9570	0.9570	0.7450	0.7450	0.7450	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	214	58	3	228	14	37	45	14	46	37	2
Total Analysis Volume [veh/h]	70	855	231	11	912	54	148	180	55	184	149	7
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	17	32	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	50	50	2	46	46	9	7	7	11	9	9
g / C, Green / Cycle	0.07	0.59	0.59	0.02	0.54	0.54	0.10	0.08	0.08	0.12	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.15	0.01	0.26	0.03	0.08	0.05	0.03	0.10	0.04	0.00
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	121	2081	929	36	1911	853	186	295	132	222	367	164
d1, Uniform Delay [s]	38.52	9.68	8.61	41.14	12.29	9.46	37.27	37.73	37.11	36.41	35.76	34.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.31	0.60	0.64	4.60	0.86	0.14	7.56	2.03	2.09	7.76	0.72	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.41	0.25	0.30	0.48	0.06	0.80	0.61	0.42	0.83	0.41	0.04
d, Delay for Lane Group [s/veh]	42.84	10.29	9.25	45.74	13.14	9.60	44.83	39.77	39.20	44.17	36.48	34.52
Lane Group LOS	D	B	A	D	B	A	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.54	4.06	2.03	0.27	5.15	0.48	3.34	1.87	1.15	4.14	1.46	0.13
50th-Percentile Queue Length [ft/ln]	38.53	101.43	50.77	6.77	128.74	12.07	83.62	46.65	28.70	103.39	36.54	3.34
95th-Percentile Queue Length [veh/ln]	2.77	7.30	3.66	0.49	8.87	0.87	6.02	3.36	2.07	7.44	2.63	0.24
95th-Percentile Queue Length [ft/ln]	69.36	182.58	91.39	12.19	221.78	21.72	150.52	83.96	51.66	186.11	65.78	6.02

Movement, Approach, & Intersection Results

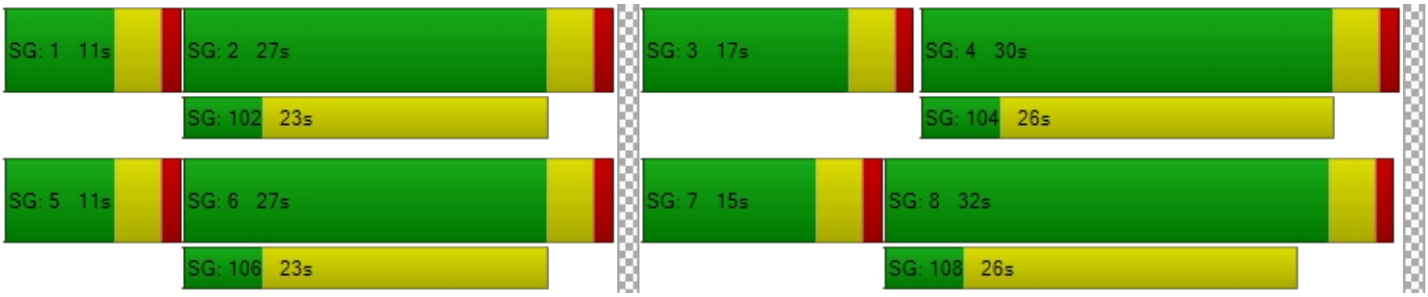
d_M, Delay for Movement [s/veh]	42.84	10.29	9.25	45.74	13.14	9.60	44.83	39.77	39.20	44.17	36.48	34.52
Movement LOS	D	B	A	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	12.05			13.32			41.64			40.60		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.85											
Intersection LOS	B											
Intersection V/C	0.449											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.910	2.816	2.622	2.599
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	541	541	659	612
d_b, Bicycle Delay [s]	22.61	22.61	19.11	20.48
l_b,int, Bicycle LOS Score for Intersection	2.554	2.386	1.907	1.848
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.409

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	17	55	816	20	0	27	789	135	103	41	60	24	48	31
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	19	0	0	22	0	0	19
Total Hourly Volume [veh/h]	17	55	816	20	0	27	789	116	103	41	38	24	48	12
Peak Hour Factor	0.89	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.7900	0.7900	0.7900	0.7330	0.7330	0.7330
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	15	227	6	0	8	228	34	33	13	12	8	16	4
Total Analysis Volume [veh/h]	19	61	910	22	0	31	913	134	130	52	48	33	65	16
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	11	21	0	0	11	21	0	13	32	0	11	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	43	43	3	41	41	7	9	9	4	6	6
g / C, Green / Cycle	0.08	0.57	0.57	0.04	0.54	0.54	0.09	0.12	0.12	0.05	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.01	0.02	0.26	0.08	0.07	0.03	0.03	0.02	0.03	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	136	2035	908	81	1924	859	166	229	195	84	144	122
d1, Uniform Delay [s]	33.53	9.26	6.99	34.83	10.67	8.66	33.32	29.74	29.81	34.73	33.16	32.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.96	0.71	0.05	2.96	0.84	0.39	7.86	0.50	0.65	2.92	2.21	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.45	0.02	0.38	0.47	0.16	0.78	0.23	0.25	0.39	0.45	0.13
d, Delay for Lane Group [s/veh]	37.50	9.98	7.04	37.79	11.51	9.05	41.18	30.24	30.46	37.65	35.37	32.81
Lane Group LOS	D	A	A	D	B	A	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.52	3.88	0.15	0.60	4.32	1.07	2.61	0.86	0.80	0.64	1.19	0.28
50th-Percentile Queue Length [ft/ln]	38.05	97.09	3.67	15.09	108.07	26.73	65.26	21.41	19.96	15.99	29.77	7.02
95th-Percentile Queue Length [veh/ln]	2.74	6.99	0.26	1.09	7.73	1.92	4.70	1.54	1.44	1.15	2.14	0.51
95th-Percentile Queue Length [ft/ln]	68.49	174.77	6.61	27.17	193.32	48.11	117.48	38.53	35.92	28.79	53.58	12.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.5	37.5	9.98	7.04	37.7	37.7	11.5	9.05	41.18	30.24	30.46	37.65	35.37	32.81
Movement LOS	D	D	A	A	D	D	B	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	12.09				11.96				36.47			35.67		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	15.44													
Intersection LOS	B													
Intersection V/C	0.409													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.775	2.825	2.284	2.209
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	453	453	747	693
d_b, Bicycle Delay [s]	22.43	22.43	14.73	16.01
l_b,int, Bicycle LOS Score for Intersection	2.344	2.439	1.975	1.779
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	51.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	910	9	12	51	762	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	910	9	12	51	762	1	0
Peak Hour Factor	0.8710	0.8710	0.8770	0.8770	0.8770	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	261	3	3	15	217	1	0
Total Analysis Volume [veh/h]	1045	10	14	58	869	4	0
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.06	0.09	0.01	0.05	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	21.67	11.78	0.00	51.15	13.36
Movement LOS	A	A	C	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.52	0.52	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	12.93	12.93	0.00	1.91	1.91
d_A, Approach Delay [s/veh]	0.00		1.05			51.15	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	0.60						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.437

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	79	701	96	0	73	598	85	118	325	74	0	17	230	79
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	65	0	0	0	37	0	0	45	0	0	0	50
Total Hourly Volume [veh/h]	0	79	701	31	0	73	598	48	118	325	29	0	17	230	29
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.9770	0.9770	0.9770	0.91	0.91	0.91	0.91
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	22	199	9	0	21	172	14	30	83	7	0	5	63	8
Total Analysis Volume [veh/h]	0	90	797	35	0	84	687	55	121	333	30	0	19	251	32
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	36	0	0	11	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	47	47	6	47	47	7	17	17	4	4	14	14
g / C, Green / Cycle	0.07	0.52	0.52	0.07	0.52	0.52	0.07	0.18	0.18	0.05	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.02	0.05	0.13	0.03	0.03	0.09	0.02	0.01	0.01	0.13	0.02
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	126	1852	840	126	2643	825	259	665	292	89	89	300	255
d1, Uniform Delay [s]	41.01	13.38	10.61	40.95	12.07	10.81	39.98	33.07	30.61	41.2	41.2	36.8	32.6
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.32	0.73	0.09	6.01	0.24	0.16	1.30	0.58	0.15	1.19	1.19	6.10	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.43	0.04	0.67	0.26	0.07	0.47	0.50	0.10	0.21	0.21	0.84	0.13
d, Delay for Lane Group [s/veh]	48.33	14.11	10.71	46.96	12.31	10.97	41.28	33.66	30.76	42.3	42.3	42.9	32.8
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.19	4.85	0.35	2.01	2.47	0.56	1.32	3.27	0.55	0.43	0.43	5.77	0.61
50th-Percentile Queue Length [ft/ln]	54.71	121.37	8.67	50.21	61.82	13.88	32.95	81.79	13.72	10.7	10.7	144.	15.2
95th-Percentile Queue Length [veh/ln]	3.94	8.47	0.62	3.61	4.45	1.00	2.37	5.89	0.99	0.78	0.78	9.71	1.10
95th-Percentile Queue Length [ft/ln]	98.47	211.71	15.61	90.37	111.28	24.99	59.32	147.23	24.70	19.4	19.4	242.	27.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.3	48.3	14.1	10.7	46.9	46.9	12.3	10.9	41.28	33.66	30.76	42.3	42.3	42.9	32.8
Movement LOS	D	D	B	B	D	D	B	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	17.32				15.74				35.38			41.86			
Approach LOS	B				B				D			D			
d_I, Intersection Delay [s/veh]	23.32														
Intersection LOS	C														
Intersection V/C	0.437														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.934	3.007	2.793	2.667
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	711	711
d_b, Bicycle Delay [s]	21.36	22.76	18.69	18.69
l_b,int, Bicycle LOS Score for Intersection	2.374	1.988	1.996	2.109
Bicycle LOS	B	A	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	6	487	34	57	675	32	16	34	10	36	42	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	13	0	0	4	0	0	10
Total Hourly Volume [veh/h]	6	487	30	57	675	19	16	34	6	36	42	35
Peak Hour Factor	0.8900	0.8900	0.8900	0.9510	0.9510	0.9510	0.8390	0.8390	0.8390	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	137	8	15	177	5	5	10	2	11	12	10
Total Analysis Volume [veh/h]	7	547	34	60	710	20	19	41	7	42	50	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	20	0	11	19	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	37	37	5	41	5	7
g / C, Green / Cycle	0.01	0.53	0.53	0.07	0.59	0.07	0.10
(v / s)_i Volume / Saturation Flow Rate	0.00	0.29	0.02	0.03	0.39	0.04	0.08
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1861	1811	1747
c, Capacity [veh/h]	24	991	842	125	1091	134	172
d1, Uniform Delay [s]	34.25	10.95	7.92	31.39	9.88	31.24	30.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.30	2.21	0.09	2.87	3.27	2.89	7.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.55	0.04	0.48	0.67	0.50	0.77
d, Delay for Lane Group [s/veh]	40.55	13.17	8.01	34.26	13.15	34.13	38.13
Lane Group LOS	D	B	A	C	B	C	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.16	5.43	0.24	1.04	7.17	1.16	2.46
50th-Percentile Queue Length [ft/ln]	3.93	135.84	5.95	26.12	179.26	29.04	61.49
95th-Percentile Queue Length [veh/ln]	0.28	9.26	0.43	1.88	11.56	2.09	4.43
95th-Percentile Queue Length [ft/ln]	7.08	231.41	10.70	47.01	289.05	52.27	110.68

Movement, Approach, & Intersection Results

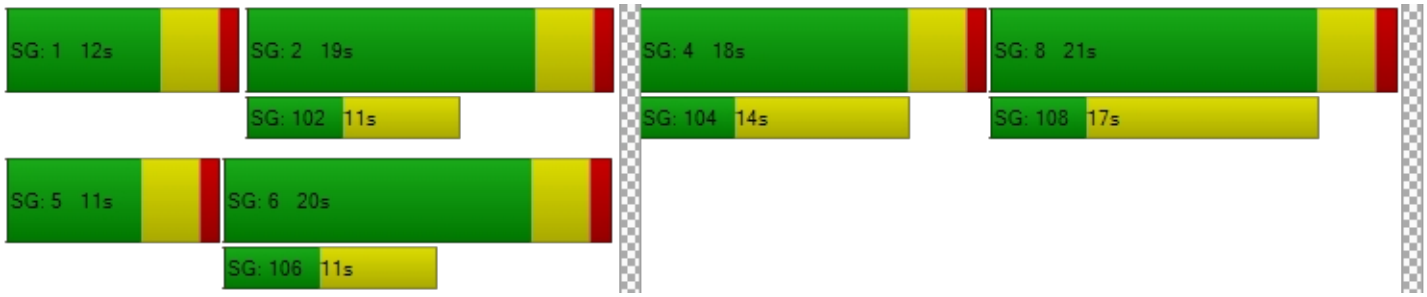
d_M, Delay for Movement [s/veh]	40.55	13.17	8.01	34.26	13.15	13.15	34.13	34.13	34.13	38.13	38.13	38.13
Movement LOS	D	B	A	C	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	13.19			14.75			34.13			38.13		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	16.96											
Intersection LOS	B											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.456	2.409	1.788	1.855
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	429	486	400
d_b, Bicycle Delay [s]	20.83	21.61	20.06	22.40
l_b,int, Bicycle LOS Score for Intersection	2.536	2.885	1.677	1.796
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	35.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.655

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	60	448	46	16	597	75	94	238	77	60	95	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	16	0	0	17	0	0	30	0	0	5
Total Hourly Volume [veh/h]	60	448	30	16	597	58	94	238	47	60	95	11
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	137	9	4	167	16	26	67	13	20	31	4
Total Analysis Volume [veh/h]	74	549	37	18	669	65	106	268	53	79	125	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	39	0	11	39	0	11	22	0	13	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	38	2	35	6	22	6	22
g / C, Green / Cycle	0.07	0.45	0.03	0.41	0.08	0.26	0.07	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.01	0.39	0.06	0.18	0.04	0.08
s, saturation flow rate [veh/h]	1781	1879	1810	1871	1810	1817	1781	1835
c, Capacity [veh/h]	121	844	52	767	137	480	124	474
d1, Uniform Delay [s]	38.51	18.73	40.51	24.37	38.57	27.95	38.50	25.32
k, delay calibration	0.11	0.22	0.11	0.40	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.88	2.06	3.95	20.46	8.93	7.22	5.31	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.69	0.35	0.96	0.77	0.67	0.64	0.30
d, Delay for Lane Group [s/veh]	43.40	20.80	44.46	44.82	47.50	35.17	43.81	26.91
Lane Group LOS	D	C	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.64	9.09	0.42	17.70	2.47	6.61	1.76	2.43
50th-Percentile Queue Length [ft/ln]	41.02	227.34	10.53	442.39	61.82	165.37	44.02	60.68
95th-Percentile Queue Length [veh/ln]	2.95	14.04	0.76	24.59	4.45	10.83	3.17	4.37
95th-Percentile Queue Length [ft/ln]	73.84	350.97	18.96	614.86	111.27	270.81	79.24	109.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.40	20.80	20.80	44.46	44.82	44.82	47.50	35.17	35.17	43.81	26.91	26.91
Movement LOS	D	C	C	D	D	D	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	23.33			44.81			38.23			33.00		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	35.30											
Intersection LOS	D											
Intersection V/C	0.655											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.451	2.604	2.221	2.129
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	824	824	424	471
d_b, Bicycle Delay [s]	14.71	14.71	26.41	24.85
l_b,int, Bicycle LOS Score for Intersection	2.675	2.828	2.314	1.929
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.185

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	902	0	0	824	0	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	902	0	0	824	0	84
Peak Hour Factor	0.8710	1.0000	1.0000	0.8770	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	259	0	0	235	0	23
Total Analysis Volume [veh/h]	1036	0	0	940	0	93
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.19
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	13.79
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.67
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	16.81
d_A, Approach Delay [s/veh]	0.00		0.00		13.79	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.62					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.146

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	59	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	59	1	1	0
Peak Hour Factor	0.9000	0.9000	0.2500	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	59	1	1	0
Total Analysis Volume [veh/h]	0	0	236	4	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.74	8.33	7.61	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.51	0.51	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	12.77	12.77	0.00	0.00
d_A, Approach Delay [s/veh]	10.54		7.48		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	7.36					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	54	1015	16	12	851	112	108	3	50	11	5	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	35	0	0	21	0	0	3
Total Hourly Volume [veh/h]	54	1015	11	12	851	77	108	3	29	11	5	4
Peak Hour Factor	0.8880	0.8880	0.8880	0.8840	0.8840	0.8840	0.8550	0.8550	0.8550	0.5750	0.5750	0.5750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	286	3	3	241	22	32	1	8	5	2	2
Total Analysis Volume [veh/h]	61	1143	12	14	963	87	126	4	34	19	9	7
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	37	0	16	35	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	53	53	2	50	50	13	13	13	13
g / C, Green / Cycle	0.07	0.67	0.67	0.02	0.63	0.63	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.04	0.36	0.01	0.01	0.30	0.06	0.10	0.03	0.02	0.01
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1257	1453	1232	1562
c, Capacity [veh/h]	105	2143	957	38	2010	897	242	229	222	246
d1, Uniform Delay [s]	36.34	6.82	4.43	38.47	7.95	5.92	34.37	29.16	32.41	28.70
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.05	0.96	0.02	5.81	0.82	0.22	1.73	0.34	0.16	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.53	0.01	0.37	0.48	0.10	0.52	0.17	0.09	0.07
d, Delay for Lane Group [s/veh]	41.39	7.78	4.45	44.27	8.77	6.13	36.10	29.50	32.58	28.80
Lane Group LOS	D	A	A	D	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.28	4.27	0.06	0.33	3.95	0.55	2.45	0.64	0.34	0.26
50th-Percentile Queue Length [ft/ln]	32.04	106.77	1.52	8.18	98.83	13.87	61.17	15.98	8.43	6.58
95th-Percentile Queue Length [veh/ln]	2.31	7.66	0.11	0.59	7.12	1.00	4.40	1.15	0.61	0.47
95th-Percentile Queue Length [ft/ln]	57.67	191.49	2.73	14.72	177.90	24.97	110.11	28.76	15.18	11.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.39	7.78	4.45	44.27	8.77	6.13	36.10	29.50	29.50	32.58	28.80	28.80
Movement LOS	D	A	A	D	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.43			9.02			34.57			30.85		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	11.22											
Intersection LOS	B											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.850	3.064	2.088	1.964
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	825	775	575	575
d_b, Bicycle Delay [s]	13.81	15.01	20.31	20.31
l_b,int, Bicycle LOS Score for Intersection	2.567	2.466	1.865	1.622
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

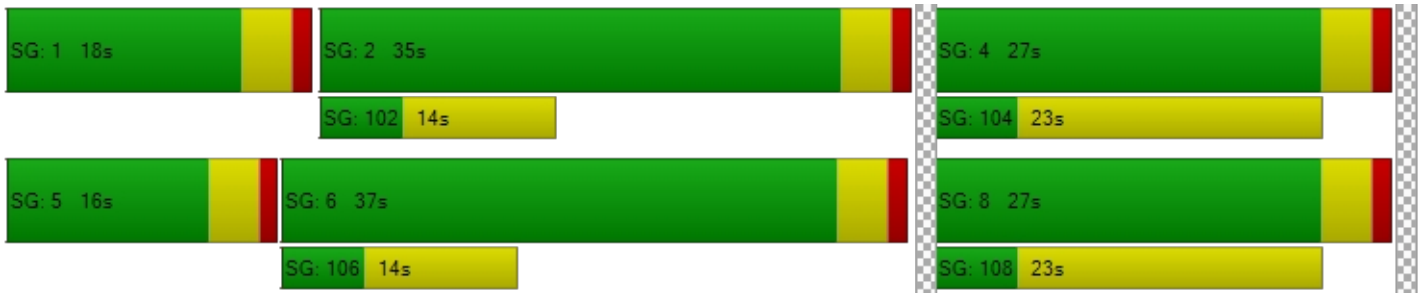


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Moreno Valley Elementary School

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Scenario 3 OY AM
5/26/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.424	23.4	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.438	25.8	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	NB Left	0.713	33.1	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.517	18.0	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.038	40.6	E
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.592	31.6	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.582	21.9	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	SB Thru	0.640	36.4	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.013	0.0	A
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	WB Thru	0.000	0.0	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.702	23.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	23.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	91	320	55	25	265	75	30	166	41	63	299	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	32	0	0	14	0	0	6
Total Hourly Volume [veh/h]	91	320	38	25	265	43	30	166	27	63	299	41
Peak Hour Factor	0.8230	0.8230	0.8230	0.8070	0.8070	0.8070	0.7500	0.7500	0.7500	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	97	12	8	82	13	10	55	9	20	96	13
Total Analysis Volume [veh/h]	111	389	46	31	328	53	40	221	36	81	383	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	25	0	11	23	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	33	33	3	30	30	4	12	6	14	14
g / C, Green / Cycle	0.09	0.48	0.48	0.05	0.43	0.43	0.06	0.17	0.08	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.03	0.02	0.18	0.03	0.02	0.14	0.05	0.12	0.12
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1825	1781	1870	1792
c, Capacity [veh/h]	160	885	752	84	805	684	100	312	144	366	351
d1, Uniform Delay [s]	31.02	12.32	10.05	32.44	13.82	11.79	32.01	28.12	31.07	25.78	25.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.24	1.59	0.16	2.65	1.53	0.22	2.56	5.50	3.38	1.62	1.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.44	0.06	0.37	0.41	0.08	0.40	0.82	0.56	0.61	0.61
d, Delay for Lane Group [s/veh]	36.26	13.91	10.20	35.09	15.35	12.01	34.57	33.62	34.45	27.40	27.54
Lane Group LOS	D	B	B	D	B	B	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.99	4.00	0.38	0.56	3.59	0.49	0.71	4.45	1.41	3.38	3.28
50th-Percentile Queue Length [ft/ln]	49.81	99.89	9.51	13.93	89.86	12.26	17.66	111.24	35.28	84.55	82.09
95th-Percentile Queue Length [veh/ln]	3.59	7.19	0.68	1.00	6.47	0.88	1.27	7.91	2.54	6.09	5.91
95th-Percentile Queue Length [ft/ln]	89.66	179.80	17.11	25.07	161.75	22.06	31.79	197.72	63.50	152.18	147.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.26	13.91	10.20	35.09	15.35	12.01	34.57	33.62	33.62	34.45	27.46	27.54
Movement LOS	D	B	B	D	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	18.14			16.41			33.75			28.57		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	23.40											
Intersection LOS	C											
Intersection V/C	0.424											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.393	2.393	2.357	2.333
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	543	543	543
d_b, Bicycle Delay [s]	17.15	18.58	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.489	2.292	2.073	1.991
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.438

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	211	97	76	163	80	78	229	12	64	274	118
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	20	0	0	4	0	0	24
Total Hourly Volume [veh/h]	31	211	84	76	163	60	78	229	8	64	274	94
Peak Hour Factor	0.6600	0.6600	0.6600	0.8380	0.8380	0.8380	0.6310	0.6310	0.6310	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	80	32	23	49	18	31	91	3	25	109	37
Total Analysis Volume [veh/h]	47	320	127	91	195	72	124	363	13	102	435	149
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	27	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	26	26	6	27	27	6	16	6	16	16
g / C, Green / Cycle	0.06	0.37	0.37	0.08	0.39	0.39	0.09	0.23	0.09	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.03	0.12	0.13	0.05	0.07	0.08	0.07	0.20	0.06	0.16	0.16
s, saturation flow rate [veh/h]	1781	1870	1693	1781	1870	1703	1781	1859	1781	1870	1709
c, Capacity [veh/h]	110	685	620	151	727	663	165	434	157	427	391
d1, Uniform Delay [s]	31.75	16.10	16.16	31.02	14.15	14.20	31.07	25.88	31.00	24.97	25.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.58	1.34	1.53	3.84	0.57	0.66	6.67	5.36	4.52	2.21	2.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.34	0.35	0.60	0.19	0.20	0.75	0.87	0.65	0.71	0.72
d, Delay for Lane Group [s/veh]	34.33	17.44	17.69	34.85	14.73	14.86	37.74	31.24	35.52	27.18	27.48
Lane Group LOS	C	B	B	C	B	B	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.82	2.75	2.59	1.60	1.45	1.38	2.28	6.33	1.81	4.68	4.34
50th-Percentile Queue Length [ft/ln]	20.58	68.78	64.63	39.89	36.17	34.55	56.98	158.28	45.21	116.88	108.48
95th-Percentile Queue Length [veh/ln]	1.48	4.95	4.65	2.87	2.60	2.49	4.10	10.46	3.26	8.22	7.76
95th-Percentile Queue Length [ft/ln]	37.04	123.80	116.33	71.81	65.11	62.19	102.57	261.44	81.38	205.53	193.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.33	17.51	17.69	34.85	14.77	14.86	37.74	31.24	31.24	35.52	27.27	27.48
Movement LOS	C	B	B	C	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	19.16			19.89			32.85			28.54		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	25.81											
Intersection LOS	C											
Intersection V/C	0.438											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.467	2.511	2.388	2.472
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	657	571
d_b, Bicycle Delay [s]	20.06	20.06	15.78	17.86
l_b,int, Bicycle LOS Score for Intersection	1.978	1.871	2.391	2.145
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	75	716	156	10	1153	95	224	204	228	133	130	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	31	0	0	30	0	0	109	0	0	14
Total Hourly Volume [veh/h]	75	716	125	10	1153	65	224	204	119	133	130	9
Peak Hour Factor	0.8440	0.8440	0.8440	0.7930	0.7930	0.7930	0.6080	0.6080	0.6080	0.7620	0.7620	0.7620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	212	37	3	363	20	92	84	49	44	43	3
Total Analysis Volume [veh/h]	89	848	148	13	1454	82	368	336	196	175	171	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	38	0	11	27	0	31	30	0	31	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	60	60	2	55	55	25	19	19	13	8	8
g / C, Green / Cycle	0.06	0.54	0.54	0.02	0.50	0.50	0.22	0.17	0.17	0.12	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.05	0.24	0.09	0.01	0.41	0.05	0.21	0.09	0.12	0.10	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	115	1924	859	39	1772	791	398	623	278	209	245	109
d1, Uniform Delay [s]	50.69	15.27	12.82	53.05	23.49	14.65	41.81	41.37	42.73	47.56	50.16	48.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.27	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.41	0.74	0.44	4.89	4.41	0.26	19.18	0.73	3.25	8.58	3.60	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.44	0.17	0.33	0.82	0.10	0.92	0.54	0.70	0.84	0.70	0.11
d, Delay for Lane Group [s/veh]	61.10	16.00	13.26	57.94	27.90	14.91	60.99	42.10	45.99	56.14	53.76	48.55
Lane Group LOS	E	B	B	E	C	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.74	6.39	1.92	0.41	16.38	1.13	11.80	4.21	5.25	5.18	2.42	0.32
50th-Percentile Queue Length [ft/ln]	68.56	159.81	48.02	10.18	409.38	28.34	294.90	105.20	131.17	129.41	60.54	8.07
95th-Percentile Queue Length [veh/ln]	4.94	10.54	3.46	0.73	23.01	2.04	17.43	7.57	9.00	8.91	4.36	0.58
95th-Percentile Queue Length [ft/ln]	123.42	263.47	86.43	18.32	575.29	51.01	435.72	189.31	225.09	222.70	108.96	14.53

Movement, Approach, & Intersection Results

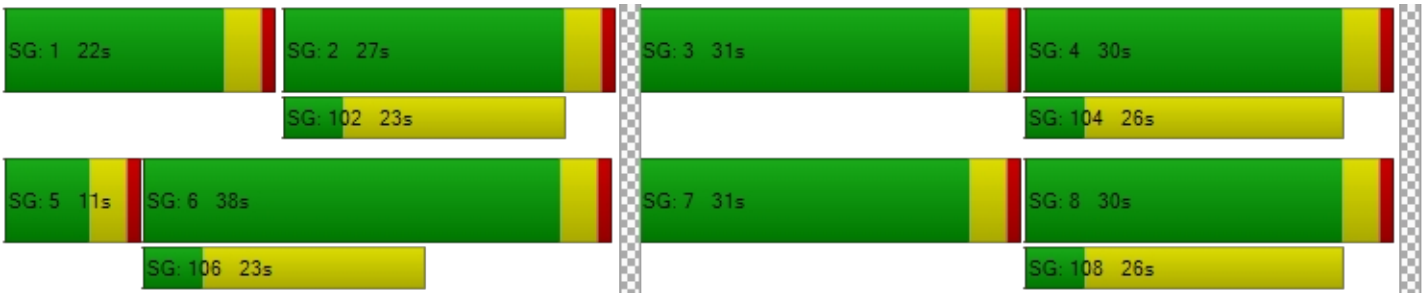
d_M, Delay for Movement [s/veh]	61.10	16.00	13.26	57.94	27.90	14.91	60.99	42.10	45.99	56.14	53.76	48.55
Movement LOS	E	B	B	E	C	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	19.33			27.46			50.67			54.75		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	33.07											
Intersection LOS	C											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.37	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	3.004	2.965	2.843	2.630
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	618	418	473	473
d_b, Bicycle Delay [s]	26.25	34.40	32.07	32.07
l_b,int, Bicycle LOS Score for Intersection	2.480	2.862	2.392	1.867
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	0	50	730	4	0	36	985	145	124	64	47	7	64	96
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	20	0	0	17	0	0	59
Total Hourly Volume [veh/h]	0	50	730	4	0	36	985	125	124	64	30	7	64	37
Peak Hour Factor	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.7840	0.7840	0.7840	0.6980	0.6980	0.6980
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	15	221	1	0	11	307	39	40	20	10	3	23	13
Total Analysis Volume [veh/h]	0	61	886	5	0	45	1227	156	158	82	38	10	92	53
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	17	27	0	0	11	21	0	13	30	0	17	34	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	49	49	5	48	48	9	14	14	2	7	7
g / C, Green / Cycle	0.06	0.57	0.57	0.05	0.56	0.56	0.11	0.17	0.17	0.02	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.00	0.03	0.34	0.10	0.09	0.04	0.02	0.01	0.05	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	114	2028	905	99	1996	891	190	315	268	34	151	128
d1, Uniform Delay [s]	38.62	10.51	7.92	39.00	12.55	9.12	37.31	30.81	30.18	41.24	37.87	37.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.81	0.69	0.01	3.26	1.43	0.43	9.07	0.43	0.24	4.85	3.94	2.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.44	0.01	0.46	0.61	0.18	0.83	0.26	0.14	0.30	0.61	0.41
d, Delay for Lane Group [s/veh]	42.43	11.20	7.93	42.26	13.97	9.55	46.39	31.24	30.42	46.09	41.81	39.36
Lane Group LOS	D	B	A	D	B	A	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.34	4.48	0.04	0.99	7.39	1.40	3.64	1.48	0.67	0.25	1.99	1.11
50th-Percentile Queue Length [ft/ln]	33.43	111.88	0.98	24.70	184.71	34.95	91.04	36.92	16.77	6.24	49.75	27.74
95th-Percentile Queue Length [veh/ln]	2.41	7.94	0.07	1.78	11.85	2.52	6.55	2.66	1.21	0.45	3.58	2.00
95th-Percentile Queue Length [ft/ln]	60.17	198.61	1.76	44.45	296.16	62.92	163.87	66.45	30.19	11.23	89.55	49.93

Movement, Approach, & Intersection Results

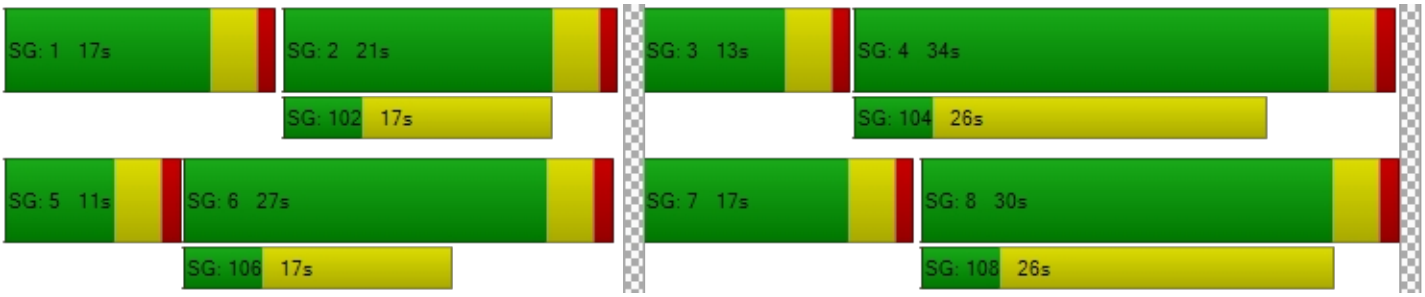
d_M, Delay for Movement [s/veh]	42.4	42.4	11.2	7.93	42.2	42.2	13.9	9.55	46.39	31.24	30.42	46.09	41.81	39.36
Movement LOS	D	D	B	A	D	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	13.18				14.38				39.74			41.25		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	17.96													
Intersection LOS	B													
Intersection V/C	0.517													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.816	2.903	2.306	2.298
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	541	400	612	706
d_b, Bicycle Delay [s]	22.61	27.20	20.48	17.79
l_b,int, Bicycle LOS Score for Intersection	2.295	2.717	2.046	1.913
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	40.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	791	1	0	1	1033	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	791	1	0	1	1033	2	2
Peak Hour Factor	0.8650	0.8650	0.8200	0.8200	0.8200	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	229	0	0	0	315	1	1
Total Analysis Volume [veh/h]	914	1	0	1	1260	4	4
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.04	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	17.65	9.87	0.00	40.64	11.59
Movement LOS	A	A	C	A	A	E	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.07	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.10	0.10	0.00	1.75	0.55
d_A, Approach Delay [s/veh]	0.00		0.01			26.11	
Approach LOS	A		A			D	
d_I, Intersection Delay [s/veh]	0.10						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	31.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.592

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	89	575	32	0	64	842	123	74	205	103	0	124	435	146
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	22	0	0	0	53	0	0	63	0	0	0	92
Total Hourly Volume [veh/h]	0	89	575	10	0	64	842	70	74	205	40	0	124	435	54
Peak Hour Factor	0.87	0.87	0.87	0.87	0.75	0.75	0.75	0.75	0.7940	0.7940	0.7940	0.78	0.78	0.78	0.78
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	26	165	3	0	21	277	23	23	65	13	0	39	138	17
Total Analysis Volume [veh/h]	0	102	660	11	0	84	1109	92	93	258	50	0	157	551	68
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	33	0	0	14	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	33	33	6	33	33	6	25	25	10	10	28	28
g / C, Green / Cycle	0.07	0.37	0.37	0.07	0.37	0.37	0.07	0.28	0.28	0.11	0.11	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.01	0.05	0.22	0.06	0.03	0.07	0.03	0.09	0.09	0.29	0.04
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	131	1319	598	125	1864	582	245	995	437	195	195	593	504
d1, Uniform Delay [s]	41.02	21.92	17.98	40.96	23.16	19.23	39.97	25.48	24.44	39.2	39.2	30.0	22.2
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.31	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.60	1.36	0.06	6.20	1.41	0.58	0.97	0.14	0.11	7.51	7.51	16.1	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.50	0.02	0.67	0.60	0.16	0.38	0.26	0.11	0.80	0.80	0.93	0.13
d, Delay for Lane Group [s/veh]	50.62	23.28	18.03	47.15	24.57	19.81	40.94	25.62	24.55	46.7	46.7	46.1	22.3
Lane Group LOS	D	C	B	D	C	B	D	C	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.55	5.46	0.15	2.01	6.37	1.36	1.01	2.14	0.80	3.75	3.75	13.7	1.03
50th-Percentile Queue Length [ft/ln]	63.63	136.47	3.80	50.32	159.35	34.02	25.15	53.38	20.01	93.7	93.7	344.	25.8
95th-Percentile Queue Length [veh/ln]	4.58	9.29	0.27	3.62	10.51	2.45	1.81	3.84	1.44	6.75	6.75	19.8	1.86
95th-Percentile Queue Length [ft/ln]	114.53	232.26	6.83	90.57	262.87	61.24	45.28	96.09	36.02	168.	168.	496.	46.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.6	50.6	23.2	18.0	47.1	47.1	24.5	19.8	40.94	25.62	24.55	46.7	46.7	46.1	22.3
Movement LOS	D	D	C	B	D	D	C	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	26.81				25.70				29.04			44.63			
Approach LOS	C				C				C			D			
d_I, Intersection Delay [s/veh]	31.55														
Intersection LOS	C														
Intersection V/C	0.592														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.930	3.077	2.861	2.787
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	644	711
d_b, Bicycle Delay [s]	21.36	22.76	20.67	18.69
l_b,int, Bicycle LOS Score for Intersection	2.215	2.249	1.942	2.733
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.582

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	572	37	26	442	13	13	50	6	47	68	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	2	0	0	12
Total Hourly Volume [veh/h]	4	572	33	26	442	8	13	50	4	47	68	38
Peak Hour Factor	0.8040	0.8040	0.8040	0.8530	0.8530	0.8530	0.7630	0.7630	0.7630	0.6340	0.6340	0.6340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	178	10	8	130	2	4	16	1	19	27	15
Total Analysis Volume [veh/h]	5	711	41	30	518	9	17	66	5	74	107	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	11	29	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	42	42	3	44	6	13
g / C, Green / Cycle	0.01	0.52	0.52	0.04	0.56	0.08	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.38	0.03	0.02	0.28	0.05	0.14
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1864	1834	1765
c, Capacity [veh/h]	19	972	826	79	1032	140	282
d1, Uniform Delay [s]	39.36	14.91	9.49	37.26	11.15	35.95	32.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.01	4.84	0.11	2.99	1.81	4.59	7.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.73	0.05	0.38	0.51	0.63	0.85
d, Delay for Lane Group [s/veh]	46.37	19.76	9.60	40.25	12.95	40.54	39.98
Lane Group LOS	D	B	A	D	B	D	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.13	10.21	0.35	0.63	5.67	1.81	4.98
50th-Percentile Queue Length [ft/ln]	3.33	255.16	8.81	15.68	141.72	45.32	124.56
95th-Percentile Queue Length [veh/ln]	0.24	15.45	0.63	1.13	9.57	3.26	8.64
95th-Percentile Queue Length [ft/ln]	6.00	386.14	15.86	28.22	239.33	81.58	216.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.37	19.76	9.60	40.25	12.95	12.95	40.54	40.54	40.54	39.98	39.98	39.98
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	19.38			14.42			40.54			39.98		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	21.86											
Intersection LOS	C											
Intersection V/C	0.582											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.464	2.386	1.819	1.920
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	625	425	350
d_b, Bicycle Delay [s]	18.23	18.91	24.81	27.23
l_b,int, Bicycle LOS Score for Intersection	2.815	2.487	1.708	1.977
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	145	559	36	10	415	96	79	135	75	51	265	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	21	0	0	29	0	0	3
Total Hourly Volume [veh/h]	145	559	24	10	415	75	79	135	46	51	265	8
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	171	7	3	116	21	22	38	13	17	87	3
Total Analysis Volume [veh/h]	178	685	29	11	465	84	89	152	52	67	350	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	34	0	11	31	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	34	2	25	6	23	5	23
g / C, Green / Cycle	0.12	0.42	0.02	0.32	0.08	0.29	0.07	0.29
(v / s)_i Volume / Saturation Flow Rate	0.10	0.38	0.01	0.30	0.05	0.11	0.04	0.19
s, saturation flow rate [veh/h]	1781	1886	1810	1850	1810	1789	1781	1860
c, Capacity [veh/h]	216	788	36	585	138	526	122	533
d1, Uniform Delay [s]	34.37	21.84	38.72	26.62	35.96	22.53	36.11	25.30
k, delay calibration	0.11	0.35	0.11	0.30	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.70	12.06	4.72	17.16	5.00	2.15	3.80	6.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.91	0.31	0.94	0.65	0.39	0.55	0.68
d, Delay for Lane Group [s/veh]	42.07	33.90	43.44	43.78	40.96	24.68	39.91	32.08
Lane Group LOS	D	C	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.76	14.17	0.26	12.39	1.85	3.27	1.37	6.82
50th-Percentile Queue Length [ft/ln]	93.95	354.18	6.41	309.63	46.13	81.69	34.27	170.62
95th-Percentile Queue Length [veh/ln]	6.76	20.34	0.46	18.16	3.32	5.88	2.47	11.11
95th-Percentile Queue Length [ft/ln]	169.11	508.50	11.54	453.92	83.03	147.04	61.68	277.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.07	33.90	33.90	43.44	43.78	43.78	40.96	24.68	24.68	39.91	32.08	32.08
Movement LOS	D	C	C	D	D	D	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	35.53			43.77			29.62			33.31		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	36.42											
Intersection LOS	D											
Intersection V/C	0.640											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.446	2.592	2.287	2.147
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	675	500	500
d_b, Bicycle Delay [s]	15.63	17.56	22.50	22.50
l_b,int, Bicycle LOS Score for Intersection	3.051	2.518	2.091	2.271
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	793	0	0	1034	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	793	0	0	1034	0	0
Peak Hour Factor	0.8650	1.0000	1.0000	0.8200	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	229	0	0	315	0	0
Total Analysis Volume [veh/h]	917	0	0	1261	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.55
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		11.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	2	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	2	4	0
Peak Hour Factor	0.9000	0.9000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	2	0
Total Analysis Volume [veh/h]	0	0	0	4	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.57	8.35	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.46		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	223	908	12	11	1076	257	143	10	89	31	25	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	80	0	0	37	0	0	4
Total Hourly Volume [veh/h]	223	908	8	11	1076	177	143	10	52	31	25	6
Peak Hour Factor	0.7880	0.7880	0.7880	0.8820	0.8820	0.8820	0.8150	0.8150	0.8150	0.5180	0.5180	0.5180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	288	3	3	305	50	44	3	16	15	12	3
Total Analysis Volume [veh/h]	283	1152	10	12	1220	201	175	12	64	60	48	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	46	0	11	30	0	0	23	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	49	49	2	34	34	18	18	18	18
g / C, Green / Cycle	0.20	0.61	0.61	0.02	0.43	0.43	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.18	0.36	0.01	0.01	0.38	0.14	0.14	0.05	0.05	0.04
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1208	1465	1191	1626
c, Capacity [veh/h]	323	1949	870	33	1371	612	289	324	271	359
d1, Uniform Delay [s]	31.00	9.59	6.19	38.65	21.15	15.24	32.64	25.61	30.30	25.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.59	1.33	0.02	6.37	8.99	1.43	2.04	0.37	0.41	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.59	0.01	0.36	0.89	0.33	0.61	0.23	0.22	0.17
d, Delay for Lane Group [s/veh]	38.60	10.92	6.21	45.02	30.14	16.67	34.68	25.98	30.71	25.43
Lane Group LOS	D	B	A	D	C	B	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	5.79	5.61	0.06	0.29	11.42	2.55	3.37	1.19	1.04	0.92
50th-Percentile Queue Length [ft/ln]	144.78	140.35	1.62	7.19	285.43	63.69	84.20	29.70	25.95	22.98
95th-Percentile Queue Length [veh/ln]	9.74	9.50	0.12	0.52	16.96	4.59	6.06	2.14	1.87	1.65
95th-Percentile Queue Length [ft/ln]	243.44	237.49	2.91	12.93	423.96	114.65	151.56	53.45	46.71	41.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.60	10.92	6.21	45.02	30.14	16.67	34.68	25.98	25.98	30.71	25.43	25.43
Movement LOS	D	B	A	D	C	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.31			28.37			32.05			28.07		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	23.28											
Intersection LOS	C											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.999	3.275	2.281	1.994
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1050	650	475	475
d_b, Bicycle Delay [s]	9.03	18.23	23.26	23.26
l_b,int, Bicycle LOS Score for Intersection	2.755	2.808	2.035	1.764
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

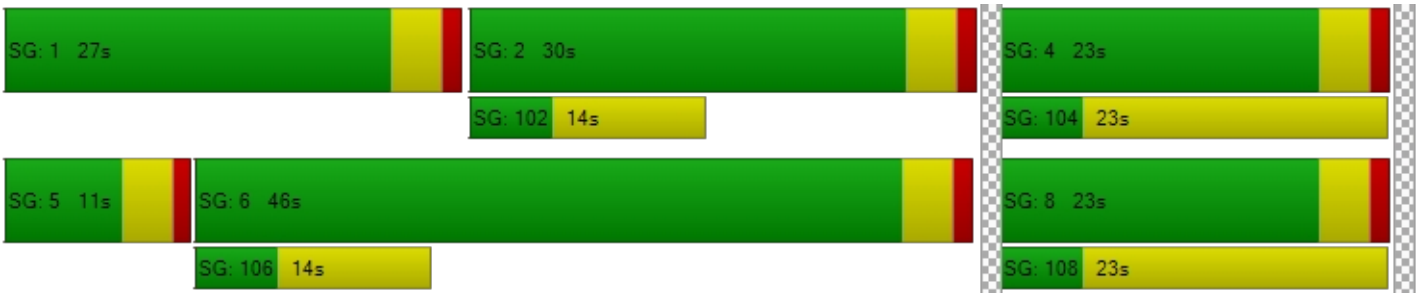


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Moreno Valley Elementary School

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Scenario 4 OY PM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	SB Left	0.344	20.4	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.196	24.2	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	SB Left	0.487	20.6	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.414	15.0	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.042	43.4	E
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.473	23.9	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.543	17.7	B
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	WB Left	0.716	38.5	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.011	0.0	A
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	WB Thru	0.000	0.0	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.506	12.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.344

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	300	24	14	237	25	21	176	81	23	146	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	7	0	0	11	0	0	27	0	0	1
Total Hourly Volume [veh/h]	45	300	17	14	237	14	21	176	54	23	146	10
Peak Hour Factor	0.9270	0.9270	0.9270	0.9360	0.9360	0.9360	0.8650	0.8650	0.8650	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	81	5	4	63	4	6	51	16	7	42	3
Total Analysis Volume [veh/h]	49	324	18	15	253	15	24	203	62	26	167	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	0	12	24	0	12	24	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	37	37	2	34	34	3	12	3	13	13
g / C, Green / Cycle	0.06	0.53	0.53	0.03	0.49	0.49	0.04	0.18	0.04	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.03	0.17	0.01	0.01	0.14	0.01	0.01	0.15	0.01	0.05	0.05
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1796	1781	1870	1830
c, Capacity [veh/h]	111	985	837	47	917	780	68	319	73	337	330
d1, Uniform Delay [s]	31.69	9.50	7.94	33.52	10.52	9.19	32.87	27.80	32.74	24.74	24.76
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.71	0.89	0.05	3.84	0.75	0.05	3.04	5.52	2.95	0.42	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.33	0.02	0.32	0.28	0.02	0.35	0.83	0.36	0.27	0.27
d, Delay for Lane Group [s/veh]	34.40	10.39	7.99	37.37	11.27	9.23	35.91	33.32	35.69	25.16	25.19
Lane Group LOS	C	B	A	D	B	A	D	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.86	2.71	0.13	0.29	2.24	0.12	0.44	4.57	0.48	1.27	1.26
50th-Percentile Queue Length [ft/ln]	21.46	67.84	3.14	7.33	55.99	2.90	11.08	114.25	11.91	31.66	31.44
95th-Percentile Queue Length [veh/ln]	1.55	4.88	0.23	0.53	4.03	0.21	0.80	8.08	0.86	2.28	2.26
95th-Percentile Queue Length [ft/ln]	38.63	122.12	5.66	13.20	100.78	5.21	19.94	201.90	21.43	56.98	56.60

Movement, Approach, & Intersection Results

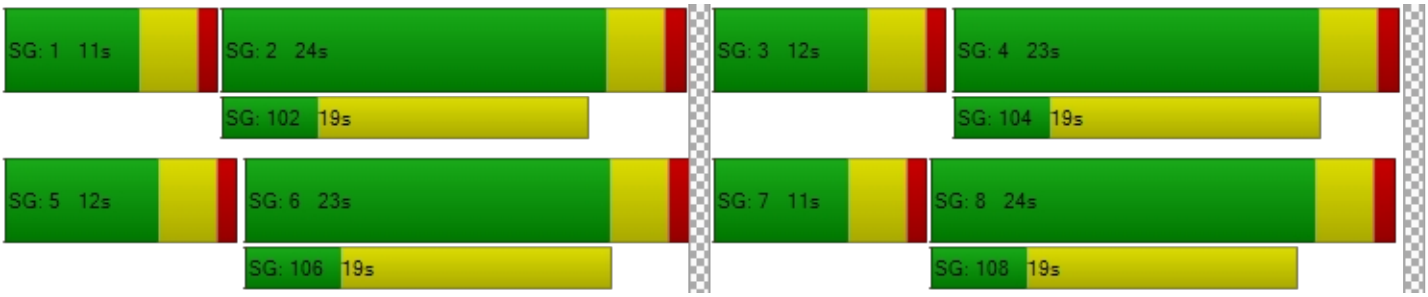
d_M, Delay for Movement [s/veh]	34.40	10.39	7.99	37.37	11.27	9.23	35.91	33.32	33.32	35.69	25.17	25.19
Movement LOS	C	B	A	D	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.29			12.54			33.54			26.51		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.43											
Intersection LOS	C											
Intersection V/C	0.344											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.317	2.295	2.294	2.231
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	543	571	571	543
d_b, Bicycle Delay [s]	18.58	17.86	17.86	18.58
l_b,int, Bicycle LOS Score for Intersection	2.216	2.045	2.081	1.729
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.196

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	110	30	20	78	20	29	178	10	26	182	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	4	0	0	4
Total Hourly Volume [veh/h]	8	110	26	20	78	15	29	178	6	26	182	14
Peak Hour Factor	0.8620	0.8620	0.8620	0.8550	0.8550	0.8550	0.8180	0.8180	0.8180	0.8020	0.8020	0.8020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	32	8	6	23	4	9	54	2	8	57	4
Total Analysis Volume [veh/h]	9	128	30	23	91	18	35	218	7	32	227	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	24	0	11	21	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	38	38	3	39	39	4	11	3	10	10
g / C, Green / Cycle	0.02	0.54	0.54	0.04	0.56	0.56	0.05	0.15	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.04	0.01	0.03	0.03	0.02	0.12	0.02	0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1751	1781	1870	1766	1781	1860	1781	1870	1825
c, Capacity [veh/h]	32	999	936	68	1037	980	92	281	86	277	270
d1, Uniform Delay [s]	34.05	7.95	7.97	32.92	7.18	7.19	32.24	28.80	32.39	27.28	27.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.68	0.16	0.18	2.90	0.10	0.11	2.59	5.24	2.63	1.11	1.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.08	0.08	0.34	0.05	0.06	0.38	0.80	0.37	0.44	0.45
d, Delay for Lane Group [s/veh]	38.73	8.11	8.14	35.82	7.27	7.29	34.83	34.04	35.02	28.40	28.47
Lane Group LOS	D	A	A	D	A	A	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.19	0.56	0.55	0.42	0.35	0.35	0.62	3.91	0.57	1.89	1.87
50th-Percentile Queue Length [ft/ln]	4.72	13.88	13.69	10.61	8.82	8.75	15.59	97.70	14.34	47.22	46.77
95th-Percentile Queue Length [veh/ln]	0.34	1.00	0.99	0.76	0.64	0.63	1.12	7.03	1.03	3.40	3.37
95th-Percentile Queue Length [ft/ln]	8.49	24.98	24.65	19.10	15.88	15.74	28.05	175.85	25.82	84.99	84.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.73	8.12	8.14	35.82	7.28	7.29	34.83	34.04	34.04	35.02	28.43	28.47
Movement LOS	D	A	A	D	A	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	9.78			12.26			34.15			29.20		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	24.18											
Intersection LOS	C											
Intersection V/C	0.196											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.354	2.358	2.253	2.261
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	486	571	571
d_b, Bicycle Delay [s]	17.86	20.06	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	1.701	1.673	1.995	1.791
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	20.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	61	781	263	12	952	85	121	147	83	182	151	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	53	0	0	27	0	0	40	0	0	11
Total Hourly Volume [veh/h]	61	781	210	12	952	58	121	147	43	182	151	7
Peak Hour Factor	0.8400	0.8400	0.8400	0.9570	0.9570	0.9570	0.7450	0.7450	0.7450	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	232	63	3	249	15	41	49	14	50	41	2
Total Analysis Volume [veh/h]	73	930	250	13	995	61	162	197	58	198	164	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	17	32	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	49	49	2	45	45	10	7	7	11	9	9
g / C, Green / Cycle	0.07	0.58	0.58	0.02	0.53	0.53	0.11	0.08	0.08	0.13	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.16	0.01	0.28	0.04	0.09	0.06	0.04	0.11	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	123	2046	913	42	1883	841	201	300	134	231	361	161
d1, Uniform Delay [s]	38.50	10.43	9.14	40.94	13.12	9.83	36.89	37.82	37.08	36.28	36.05	34.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.52	0.73	0.74	4.22	1.07	0.17	7.47	2.44	2.20	8.76	0.89	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.45	0.27	0.31	0.53	0.07	0.81	0.66	0.43	0.86	0.45	0.05
d, Delay for Lane Group [s/veh]	43.02	11.16	9.89	45.15	14.18	10.00	44.36	40.26	39.28	45.03	36.94	34.69
Lane Group LOS	D	B	A	D	B	A	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.61	4.70	2.30	0.31	5.95	0.56	3.64	2.06	1.21	4.50	1.62	0.15
50th-Percentile Queue Length [ft/ln]	40.28	117.48	57.62	7.84	148.83	14.01	91.08	51.49	30.31	112.59	40.57	3.83
95th-Percentile Queue Length [veh/ln]	2.90	8.25	4.15	0.56	9.95	1.01	6.56	3.71	2.18	7.98	2.92	0.28
95th-Percentile Queue Length [ft/ln]	72.50	206.36	103.72	14.10	248.87	25.22	163.94	92.69	54.55	199.60	73.03	6.90

Movement, Approach, & Intersection Results

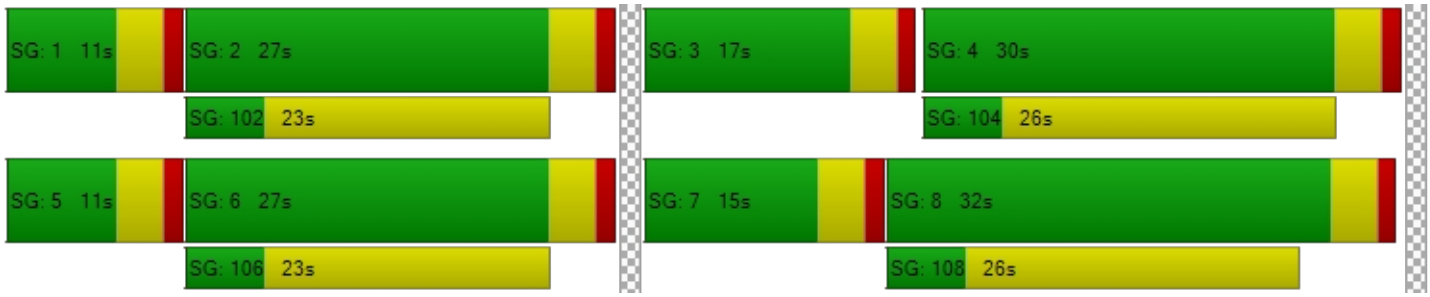
d_M, Delay for Movement [s/veh]	43.02	11.16	9.89	45.15	14.18	10.00	44.36	40.26	39.28	45.03	36.94	34.69
Movement LOS	D	B	A	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	12.76			14.32			41.72			41.22		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.57											
Intersection LOS	C											
Intersection V/C	0.487											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.949	2.849	2.636	2.612
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	541	541	659	612
d_b, Bicycle Delay [s]	22.61	22.61	19.11	20.48
l_b,int, Bicycle LOS Score for Intersection	2.637	2.464	1.937	1.874
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.414

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	0	33	870	3	0	30	843	149	113	45	41	9	53	34
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	21	0	0	15	0	0	21
Total Hourly Volume [veh/h]	0	33	870	3	0	30	843	128	113	45	26	9	53	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.7900	0.7900	0.7900	0.7330	0.7330	0.7330
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	242	1	0	9	244	37	36	14	8	3	18	4
Total Analysis Volume [veh/h]	0	37	970	3	0	35	976	148	143	57	33	12	72	18
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	11	21	0	0	11	21	0	13	32	0	11	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	42	42	4	42	42	8	12	12	2	6	6
g / C, Green / Cycle	0.05	0.56	0.56	0.05	0.55	0.55	0.10	0.16	0.16	0.02	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.02	0.27	0.00	0.02	0.27	0.09	0.08	0.03	0.02	0.01	0.04	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	93	1974	881	89	1967	878	182	300	255	40	151	128
d1, Uniform Delay [s]	34.52	10.27	7.48	34.61	10.38	8.31	32.97	27.36	27.09	36.19	33.08	32.17
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.76	0.88	0.01	2.77	0.90	0.41	7.27	0.30	0.23	4.12	2.34	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.49	0.00	0.39	0.50	0.17	0.79	0.19	0.13	0.30	0.48	0.14
d, Delay for Lane Group [s/veh]	37.28	11.15	7.49	37.38	11.27	8.72	40.24	27.66	27.32	40.31	35.42	32.67
Lane Group LOS	D	B	A	D	B	A	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.71	4.49	0.02	0.67	4.55	1.15	2.84	0.89	0.51	0.26	1.32	0.31
50th-Percentile Queue Length [ft/ln]	17.75	112.15	0.52	16.85	113.81	28.67	70.88	22.17	12.75	6.44	33.00	7.87
95th-Percentile Queue Length [veh/ln]	1.28	7.96	0.04	1.21	8.05	2.06	5.10	1.60	0.92	0.46	2.38	0.57
95th-Percentile Queue Length [ft/ln]	31.96	198.99	0.94	30.33	201.30	51.61	127.58	39.91	22.94	11.59	59.40	14.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.2	37.2	11.1	7.49	37.3	37.3	11.2	8.72	40.24	27.66	27.32	40.31	35.42	32.67
Movement LOS	D	D	B	A	D	D	B	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	12.09				11.74				35.33			35.51		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	15.04													
Intersection LOS	B													
Intersection V/C	0.414													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.778	2.854	2.273	2.206
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	453	453	747	693
d_b, Bicycle Delay [s]	22.43	22.43	14.73	16.01
l_b,int, Bicycle LOS Score for Intersection	2.362	2.504	1.969	1.763
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	43.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	992	1	0	0	820	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	992	1	0	0	820	1	0
Peak Hour Factor	0.8710	0.8710	0.8770	0.8770	0.8770	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	285	0	0	0	234	1	0
Total Analysis Volume [veh/h]	1139	1	0	0	935	4	0
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.04	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	22.82	10.92	0.00	43.37	13.54
Movement LOS	A	A	C	B	A	E	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	1.59	1.59
d_A, Approach Delay [s/veh]	0.00		0.00			43.37	
Approach LOS	A		A			E	
d_I, Intersection Delay [s/veh]	0.08						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	23.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	87	767	106	0	72	653	89	125	358	81	0	19	253	78
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	72	0	0	0	38	0	0	49	0	0	0	49
Total Hourly Volume [veh/h]	0	87	767	34	0	72	653	51	125	358	32	0	19	253	29
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.9770	0.9770	0.9770	0.91	0.91	0.91	0.91
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	25	218	10	0	21	187	15	32	92	8	0	5	69	8
Total Analysis Volume [veh/h]	0	99	873	39	0	83	750	59	128	366	33	0	21	276	32
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	36	0	0	11	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	46	6	45	45	7	18	18	5	5	15	15
g / C, Green / Cycle	0.07	0.51	0.51	0.07	0.50	0.50	0.08	0.19	0.19	0.05	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.25	0.02	0.05	0.15	0.04	0.04	0.10	0.02	0.01	0.01	0.15	0.02
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	129	1803	818	125	2563	800	261	705	310	94	94	325	277
d1, Uniform Delay [s]	41.08	14.55	11.25	40.95	13.05	11.56	40.01	32.51	29.84	41.0	41.0	36.2	31.5
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.14	0.93	0.11	5.89	0.29	0.18	1.42	0.59	0.15	1.19	1.19	6.12	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.48	0.05	0.66	0.29	0.07	0.49	0.52	0.11	0.22	0.22	0.85	0.12
d, Delay for Lane Group [s/veh]	50.22	15.48	11.36	46.83	13.34	11.74	41.43	33.10	29.99	42.1	42.1	42.3	31.7
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.46	5.69	0.40	1.98	2.86	0.62	1.40	3.57	0.59	0.47	0.47	6.32	0.60
50th-Percentile Queue Length [ft/ln]	61.50	142.18	10.05	49.53	71.43	15.57	34.95	89.36	14.87	11.8	11.8	158.	14.9
95th-Percentile Queue Length [veh/ln]	4.43	9.60	0.72	3.57	5.14	1.12	2.52	6.43	1.07	0.85	0.85	10.4	1.08
95th-Percentile Queue Length [ft/ln]	110.70	239.96	18.09	89.16	128.58	28.02	62.91	160.85	26.77	21.3	21.3	261.	26.8

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.2	50.2	15.4	11.3	46.8	46.8	13.3	11.7	41.43	33.10	29.99	42.1	42.1	42.3	31.7
Movement LOS	D	D	B	B	D	D	B	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	18.72				16.35				34.93			41.36			
Approach LOS	B				B				C			D			
d_I, Intersection Delay [s/veh]	23.88														
Intersection LOS	C														
Intersection V/C	0.473														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.967	3.026	2.811	2.677
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	711	711
d_b, Bicycle Delay [s]	21.36	22.76	18.69	18.69
l_b,int, Bicycle LOS Score for Intersection	2.453	2.025	2.035	2.149
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	17.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.543

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	536	37	63	743	26	13	33	7	40	37	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	11	0	0	3	0	0	12
Total Hourly Volume [veh/h]	7	536	33	63	743	15	13	33	4	40	37	38
Peak Hour Factor	0.8900	0.8900	0.8900	0.9510	0.9510	0.9510	0.8390	0.8390	0.8390	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	151	9	17	195	4	4	10	1	12	11	11
Total Analysis Volume [veh/h]	8	602	37	66	781	16	15	39	5	47	44	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	11	29	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	46	46	5	50	5	8
g / C, Green / Cycle	0.02	0.57	0.57	0.07	0.62	0.06	0.10
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.02	0.04	0.43	0.03	0.08
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1863	1820	1738
c, Capacity [veh/h]	28	1059	900	123	1154	119	174
d1, Uniform Delay [s]	39.02	11.11	7.72	36.11	10.15	36.22	35.26
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.35	2.21	0.09	3.63	3.39	3.18	7.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.57	0.04	0.54	0.69	0.50	0.78
d, Delay for Lane Group [s/veh]	44.37	13.33	7.80	39.75	13.54	39.40	42.78
Lane Group LOS	D	B	A	D	B	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.19	6.62	0.28	1.35	8.80	1.20	2.90
50th-Percentile Queue Length [ft/ln]	4.87	165.39	6.90	33.68	220.04	29.96	72.39
95th-Percentile Queue Length [veh/ln]	0.35	10.83	0.50	2.43	13.67	2.16	5.21
95th-Percentile Queue Length [ft/ln]	8.77	270.85	12.42	60.63	341.67	53.93	130.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.37	13.33	7.80	39.75	13.54	13.54	39.40	39.40	39.40	42.78	42.78	42.78
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	13.39			15.54			39.40			42.78		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	17.73											
Intersection LOS	B											
Intersection V/C	0.543											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.495	2.455	1.784	1.871
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	625	425	350
d_b, Bicycle Delay [s]	18.23	18.91	24.81	27.23
l_b,int, Bicycle LOS Score for Intersection	2.634	3.002	1.662	1.804
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	38.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.716

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	493	51	13	652	78	103	262	85	66	100	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	17	0	0	33	0	0	5
Total Hourly Volume [veh/h]	66	493	34	13	652	61	103	262	52	66	100	13
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	151	10	4	183	17	29	74	15	22	33	4
Total Analysis Volume [veh/h]	81	604	42	15	731	68	116	295	59	87	132	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	51	0	13	45	0	12	24	0	12	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	49	2	45	8	27	6	25
g / C, Green / Cycle	0.06	0.49	0.02	0.45	0.08	0.27	0.06	0.25
(v / s)_i Volume / Saturation Flow Rate	0.05	0.34	0.01	0.43	0.06	0.19	0.05	0.08
s, saturation flow rate [veh/h]	1781	1878	1810	1872	1810	1817	1781	1833
c, Capacity [veh/h]	112	911	43	835	144	485	114	460
d1, Uniform Delay [s]	46.02	20.22	48.03	26.75	45.24	33.36	46.07	30.52
k, delay calibration	0.11	0.20	0.11	0.36	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.57	1.91	4.64	17.96	9.86	9.29	10.14	1.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.71	0.35	0.96	0.80	0.73	0.76	0.32
d, Delay for Lane Group [s/veh]	54.59	22.13	52.68	44.71	55.10	42.65	56.21	32.38
Lane Group LOS	D	C	D	D	E	D	E	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.23	11.72	0.42	21.58	3.21	8.94	2.44	3.15
50th-Percentile Queue Length [ft/ln]	55.77	292.99	10.56	539.40	80.17	223.49	60.88	78.63
95th-Percentile Queue Length [veh/ln]	4.02	17.33	0.76	29.19	5.77	13.84	4.38	5.66
95th-Percentile Queue Length [ft/ln]	100.39	433.35	19.02	729.85	144.31	346.07	109.59	141.53

Movement, Approach, & Intersection Results

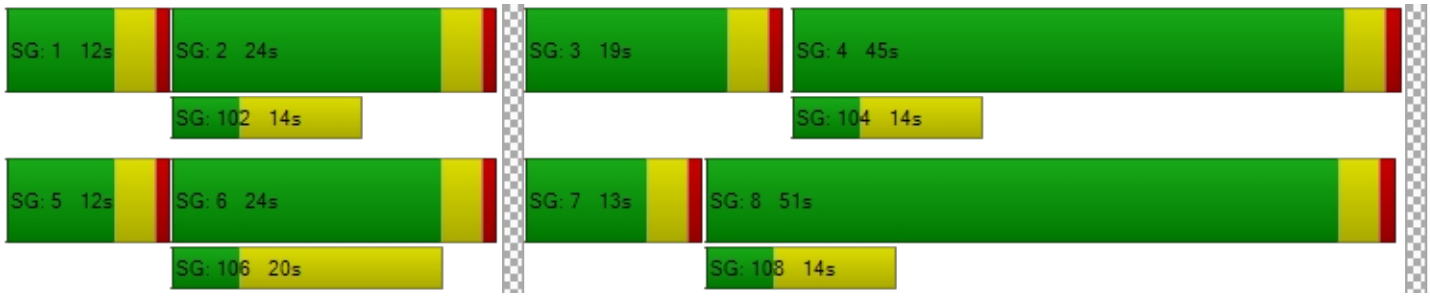
d_M, Delay for Movement [s/veh]	54.59	22.13	22.13	52.68	44.71	44.71	55.10	42.65	42.65	56.21	32.38	32.38
Movement LOS	D	C	C	D	D	D	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	25.74			44.86			45.73			41.17		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.47											
Intersection LOS	D											
Intersection V/C	0.716											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	2.509	2.637	2.254	2.152
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	940	820	400	400
d_b, Bicycle Delay [s]	14.05	17.41	32.00	32.00
l_b,int, Bicycle LOS Score for Intersection	2.787	2.931	2.390	1.957
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	992	0	0	820	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	992	0	0	820	0	0
Peak Hour Factor	0.8710	1.0000	1.0000	0.8770	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	285	0	0	234	0	0
Total Analysis Volume [veh/h]	1139	0	0	935	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.74
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		12.74	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1	1	0
Peak Hour Factor	0.9000	0.9000	0.2500	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	1	0
Total Analysis Volume [veh/h]	0	0	0	4	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	8.33	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.44		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	1098	18	13	919	123	119	3	46	12	6	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	38	0	0	19	0	0	3
Total Hourly Volume [veh/h]	51	1098	13	13	919	85	119	3	27	12	6	5
Peak Hour Factor	0.8880	0.8880	0.8880	0.8840	0.8840	0.8840	0.8550	0.8550	0.8550	0.5750	0.5750	0.5750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	309	4	4	260	24	35	1	8	5	3	2
Total Analysis Volume [veh/h]	57	1236	15	15	1040	96	139	4	32	21	10	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	39	0	14	36	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	52	52	2	49	49	14	14	14	14
g / C, Green / Cycle	0.06	0.65	0.65	0.02	0.62	0.62	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.39	0.01	0.01	0.32	0.07	0.11	0.02	0.02	0.01
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1254	1455	1235	1553
c, Capacity [veh/h]	101	2097	936	40	1975	882	256	248	240	265
d1, Uniform Delay [s]	36.41	7.78	4.83	38.38	8.72	6.31	33.89	28.24	31.43	27.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.82	1.22	0.03	5.58	1.01	0.25	1.80	0.27	0.16	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.59	0.02	0.37	0.53	0.11	0.54	0.15	0.09	0.07
d, Delay for Lane Group [s/veh]	41.23	9.00	4.86	43.96	9.72	6.56	35.69	28.50	31.59	27.99
Lane Group LOS	D	A	A	D	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.20	5.19	0.08	0.35	4.63	0.64	2.69	0.59	0.37	0.31
50th-Percentile Queue Length [ft/ln]	29.90	129.73	2.02	8.68	115.64	16.06	67.26	14.80	9.14	7.68
95th-Percentile Queue Length [veh/ln]	2.15	8.93	0.15	0.62	8.15	1.16	4.84	1.07	0.66	0.55
95th-Percentile Queue Length [ft/ln]	53.82	223.13	3.64	15.62	203.82	28.91	121.06	26.64	16.46	13.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.23	9.00	4.86	43.96	9.72	6.56	35.69	28.50	28.50	31.59	27.99	27.99
Movement LOS	D	A	A	D	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.36			9.91			34.21			29.88		
Approach LOS	B			A			C			C		
d_I, Intersection Delay [s/veh]	12.02											
Intersection LOS	B											
Intersection V/C	0.506											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.880	3.119	2.091	1.967
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	875	800	575	575
d_b, Bicycle Delay [s]	12.66	14.40	20.31	20.31
l_b,int, Bicycle LOS Score for Intersection	2.643	2.541	1.880	1.631
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

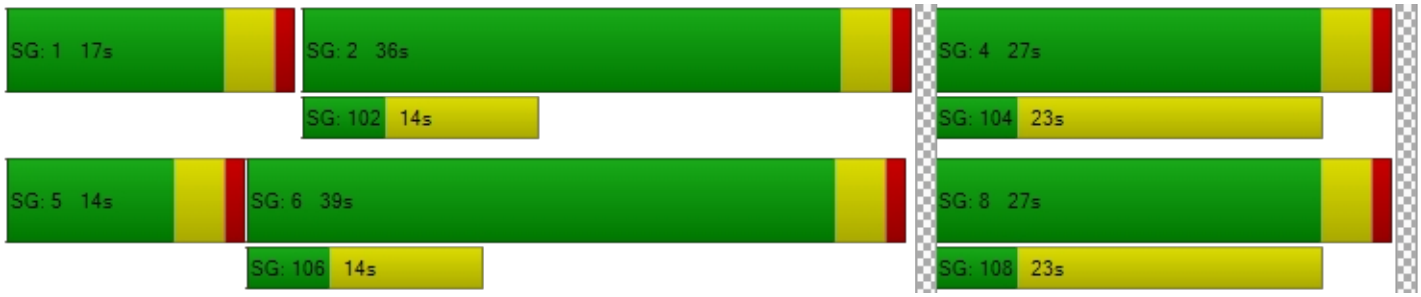


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Moreno Valley Elementary School

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Scenario 9 OY+P AM
5/26/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.454	24.5	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.513	26.8	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	EB Left	0.735	34.6	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.653	24.5	C
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.264	312.7	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	SB Left	0.602	32.4	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.639	26.8	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	SB Thru	0.670	38.9	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	WB Right	0.593	20.7	C
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	EB Left	0.320	8.3	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.750	27.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.454

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	91	329	55	59	275	75	30	183	41	63	314	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	32	0	0	14	0	0	9
Total Hourly Volume [veh/h]	91	329	38	59	275	43	30	183	27	63	314	67
Peak Hour Factor	0.8230	0.8230	0.8230	0.8070	0.8070	0.8070	0.7500	0.7500	0.7500	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	100	12	18	85	13	10	61	9	20	101	21
Total Analysis Volume [veh/h]	111	400	46	73	341	53	40	244	36	81	403	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	25	0	11	23	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	30	30	5	29	29	4	13	6	15	15
g / C, Green / Cycle	0.09	0.43	0.43	0.08	0.42	0.42	0.06	0.18	0.08	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.03	0.04	0.18	0.03	0.02	0.15	0.05	0.13	0.14
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1828	1781	1870	1758
c, Capacity [veh/h]	160	805	684	138	782	664	100	335	144	389	366
d1, Uniform Delay [s]	31.02	14.50	11.74	31.16	14.55	12.31	32.01	27.68	31.07	25.45	25.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.24	2.19	0.19	3.09	1.77	0.23	2.56	5.53	3.38	1.79	1.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.50	0.07	0.53	0.44	0.08	0.40	0.84	0.56	0.64	0.65
d, Delay for Lane Group [s/veh]	36.26	16.69	11.93	34.25	16.32	12.54	34.57	33.21	34.45	27.24	27.45
Lane Group LOS	D	B	B	C	B	B	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.99	4.65	0.42	1.27	3.90	0.50	0.71	4.83	1.41	3.83	3.66
50th-Percentile Queue Length [ft/ln]	49.81	116.23	10.58	31.70	97.38	12.62	17.66	120.65	35.28	95.74	91.46
95th-Percentile Queue Length [veh/ln]	3.59	8.19	0.76	2.28	7.01	0.91	1.27	8.43	2.54	6.89	6.59
95th-Percentile Queue Length [ft/ln]	89.66	204.64	19.05	57.07	175.28	22.72	31.79	210.72	63.50	172.33	164.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.26	16.69	11.93	34.25	16.32	12.54	34.57	33.21	33.21	34.45	27.32	27.45
Movement LOS	D	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	20.20			18.70			33.38			28.35		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	24.46											
Intersection LOS	C											
Intersection V/C	0.454											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.399	2.417	2.367	2.366
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	543	543	543
d_b, Bicycle Delay [s]	17.15	18.58	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.507	2.383	2.111	2.037
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	211	114	93	163	80	78	281	12	79	318	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	15	0	0	20	0	0	4	0	0	27
Total Hourly Volume [veh/h]	31	211	99	93	163	60	78	281	8	79	318	106
Peak Hour Factor	0.6600	0.6600	0.6600	0.8380	0.8380	0.8380	0.6310	0.6310	0.6310	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	80	38	28	49	18	31	111	3	31	126	42
Total Analysis Volume [veh/h]	47	320	150	111	195	72	124	445	13	125	505	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	27	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	22	22	6	24	24	6	19	6	19	19
g / C, Green / Cycle	0.06	0.32	0.32	0.09	0.34	0.34	0.09	0.27	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.13	0.06	0.07	0.08	0.07	0.25	0.07	0.19	0.19
s, saturation flow rate [veh/h]	1781	1870	1673	1781	1870	1703	1781	1861	1781	1870	1712
c, Capacity [veh/h]	110	590	528	160	643	585	165	509	165	512	469
d1, Uniform Delay [s]	31.75	18.93	19.00	31.02	16.33	16.38	31.07	24.58	31.09	22.81	22.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.58	2.15	2.50	5.25	0.76	0.87	6.67	7.56	6.86	1.64	1.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.42	0.43	0.69	0.21	0.22	0.75	0.90	0.76	0.69	0.69
d, Delay for Lane Group [s/veh]	34.33	21.09	21.50	36.27	17.09	17.25	37.74	32.14	37.96	24.45	24.62
Lane Group LOS	C	C	C	D	B	B	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.82	3.30	3.07	1.99	1.60	1.53	2.28	7.91	2.31	5.09	4.70
50th-Percentile Queue Length [ft/ln]	20.58	82.47	76.86	49.82	40.06	38.18	56.98	197.69	57.63	127.32	117.50
95th-Percentile Queue Length [veh/ln]	1.48	5.94	5.53	3.59	2.88	2.75	4.10	12.52	4.15	8.79	8.26
95th-Percentile Queue Length [ft/ln]	37.04	148.45	138.35	89.67	72.10	68.72	102.57	312.98	103.74	219.84	206.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.33	21.18	21.50	36.27	17.14	17.25	37.74	32.14	32.14	37.96	24.50	24.62
Movement LOS	C	C	C	D	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	22.47			22.78			33.33			26.63		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.76											
Intersection LOS	C											
Intersection V/C	0.513											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.479	2.519	2.425	2.535
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	657	571
d_b, Bicycle Delay [s]	20.06	20.06	15.78	17.86
l_b,int, Bicycle LOS Score for Intersection	1.999	1.888	2.527	2.240
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	34.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	90	745	171	10	1187	95	224	204	245	150	130	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	34	0	0	30	0	0	118	0	0	14
Total Hourly Volume [veh/h]	90	745	137	10	1187	65	224	204	127	150	130	9
Peak Hour Factor	0.8440	0.8440	0.8440	0.7930	0.7930	0.7930	0.6080	0.6080	0.6080	0.7620	0.7620	0.7620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	221	41	3	374	20	92	84	52	49	43	3
Total Analysis Volume [veh/h]	107	883	162	13	1497	82	368	336	209	197	171	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	35	0	11	27	0	34	31	0	33	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	59	59	2	53	53	25	18	18	14	8	8
g / C, Green / Cycle	0.08	0.54	0.54	0.02	0.49	0.49	0.22	0.16	0.16	0.13	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.06	0.25	0.10	0.01	0.42	0.05	0.21	0.09	0.13	0.11	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	135	1918	856	39	1726	770	401	584	261	232	245	109
d1, Uniform Delay [s]	50.01	15.58	13.04	53.05	25.22	15.41	41.65	42.49	44.31	46.84	50.15	48.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.27	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.84	0.80	0.49	4.89	6.19	0.28	18.26	0.90	5.69	8.46	3.58	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.46	0.19	0.33	0.87	0.11	0.92	0.58	0.80	0.85	0.70	0.11
d, Delay for Lane Group [s/veh]	59.85	16.37	13.53	57.94	31.41	15.69	59.91	43.39	50.00	55.30	53.73	48.54
Lane Group LOS	E	B	B	E	C	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.26	6.78	2.13	0.41	18.06	1.17	11.69	4.28	5.87	5.80	2.42	0.32
50th-Percentile Queue Length [ft/ln]	81.46	169.45	53.34	10.18	451.60	29.24	292.16	107.03	146.77	144.96	60.52	8.07
95th-Percentile Queue Length [veh/ln]	5.87	11.05	3.84	0.73	25.03	2.11	17.29	7.67	9.84	9.75	4.36	0.58
95th-Percentile Queue Length [ft/ln]	146.63	276.19	96.01	18.32	625.86	52.63	432.33	191.87	246.11	243.68	108.93	14.53

Movement, Approach, & Intersection Results

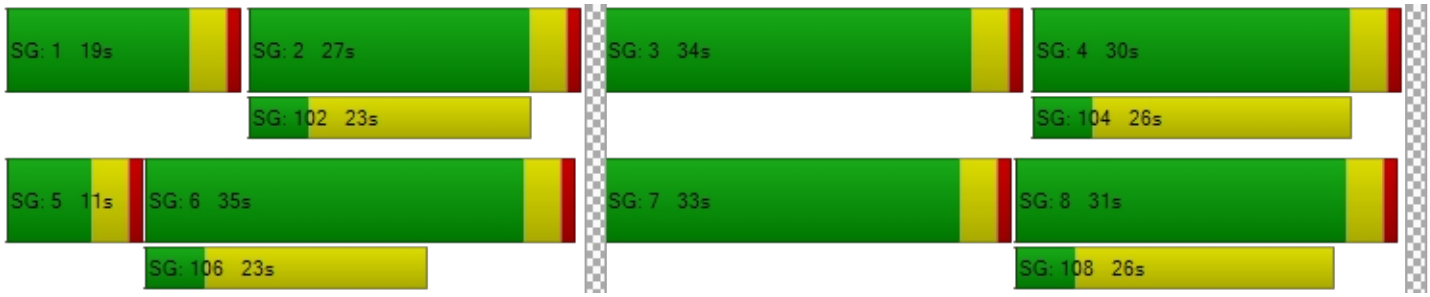
d_M, Delay for Movement [s/veh]	59.85	16.37	13.53	57.94	31.41	15.69	59.91	43.39	50.00	55.30	53.73	48.54
Movement LOS	E	B	B	E	C	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	20.01			30.82			51.56			54.38		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.64											
Intersection LOS	C											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.37	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	3.034	2.978	2.863	2.637
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	564	418	491	473
d_b, Bicycle Delay [s]	28.37	34.40	31.31	32.07
l_b,int, Bicycle LOS Score for Intersection	2.538	2.898	2.410	1.885
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	59	138	818	63	0	36	1088	145	124	64	150	76	64	96
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	20	0	0	54	0	0	59
Total Hourly Volume [veh/h]	59	138	818	63	0	36	1088	125	124	64	96	76	64	37
Peak Hour Factor	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.7840	0.7840	0.7840	0.6980	0.6980	0.6980
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	42	248	19	0	11	339	39	40	20	31	27	23	13
Total Analysis Volume [veh/h]	72	167	993	76	0	45	1355	156	158	82	122	109	92	53
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	17	27	0	0	11	21	0	13	30	0	17	34	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	49	49	5	40	40	9	9	9	7	7	7
g / C, Green / Cycle	0.15	0.57	0.57	0.05	0.47	0.47	0.11	0.11	0.11	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.13	0.28	0.05	0.03	0.38	0.10	0.09	0.04	0.08	0.06	0.05	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	273	2027	905	99	1678	749	190	202	171	142	151	129
d1, Uniform Delay [s]	35.27	10.96	8.30	39.00	19.23	13.21	37.31	35.46	36.73	38.43	37.84	37.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.64	0.85	0.18	3.26	4.29	0.63	9.07	1.32	5.38	8.37	3.89	2.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.49	0.08	0.46	0.81	0.21	0.83	0.41	0.71	0.77	0.61	0.41
d, Delay for Lane Group [s/veh]	43.91	11.81	8.48	42.26	23.52	13.84	46.39	36.78	42.11	46.79	41.73	39.32
Lane Group LOS	D	B	A	D	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.39	5.24	0.63	0.99	11.49	1.79	3.64	1.64	2.66	2.52	1.99	1.11
50th-Percentile Queue Length [ft/ln]	134.64	131.01	15.64	24.70	287.25	44.76	91.04	40.89	66.57	63.07	49.70	27.72
95th-Percentile Queue Length [veh/ln]	9.19	8.99	1.13	1.78	17.05	3.22	6.55	2.94	4.79	4.54	3.58	2.00
95th-Percentile Queue Length [ft/ln]	229.79	224.87	28.15	44.45	426.23	80.57	163.87	73.60	119.82	113.53	89.46	49.90

Movement, Approach, & Intersection Results

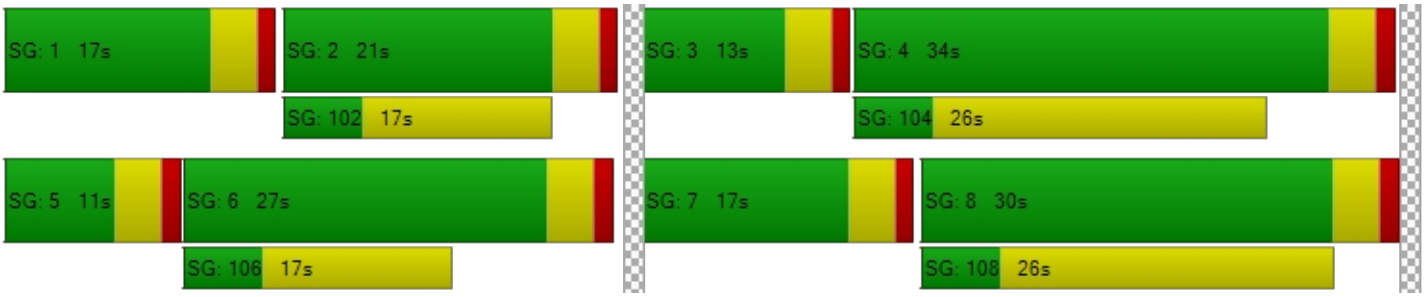
d_M, Delay for Movement [s/veh]	43.9	43.9	11.8	8.48	42.2	42.2	23.5	13.8	46.39	36.78	42.11	46.79	41.73	39.32
Movement LOS	D	D	B	A	D	D	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	17.48				23.09				42.77			43.40		
Approach LOS	B				C				D			D		
d_I, Intersection Delay [s/veh]	24.51													
Intersection LOS	C													
Intersection V/C	0.653													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.931	2.941	2.414	2.339
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	541	400	612	706
d_b, Bicycle Delay [s]	22.61	27.20	20.48	17.79
l_b,int, Bicycle LOS Score for Intersection	2.501	2.823	2.246	2.076
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	312.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.264

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	825	35	52	225	1092	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	825	35	52	225	1092	2	2
Peak Hour Factor	0.8650	0.8650	0.8200	0.8200	0.8200	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	238	10	16	69	333	1	1
Total Analysis Volume [veh/h]	954	40	63	274	1332	4	4
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free		Free			Stop	
Flared Lane						No	
Storage Area [veh]	0		0			0	
Two-Stage Gap Acceptance						No	
Number of Storage Spaces in Median	0		0			0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.24	0.40	0.01	0.26	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	29.32	21.07	0.00	312.70	11.79
Movement LOS	A	A	D	C	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	4.37	4.37	0.00	0.37	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	109.20	109.20	0.00	9.18	0.57
d_A, Approach Delay [s/veh]	0.00		4.57			162.24	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	3.34						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	32.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	89	592	32	0	93	857	138	91	205	103	0	124	435	180
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	22	0	0	0	59	0	0	63	0	0	0	113
Total Hourly Volume [veh/h]	0	89	592	10	0	93	857	79	91	205	40	0	124	435	67
Peak Hour Factor	0.87	0.87	0.87	0.87	0.75	0.75	0.75	0.75	0.7940	0.7940	0.7940	0.78	0.78	0.78	0.78
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	26	170	3	0	31	282	26	29	65	13	0	39	138	21
Total Analysis Volume [veh/h]	0	102	680	11	0	123	1129	104	115	258	50	0	157	551	85
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	33	0	0	14	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	32	7	33	33	7	25	25	10	10	28	28
g / C, Green / Cycle	0.07	0.36	0.36	0.08	0.36	0.36	0.07	0.28	0.28	0.11	0.11	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.01	0.07	0.22	0.07	0.03	0.07	0.03	0.09	0.09	0.29	0.05
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	131	1275	578	142	1848	577	256	1006	442	195	195	593	504
d1, Uniform Delay [s]	41.02	22.94	18.69	41.07	23.50	19.57	39.96	25.27	24.23	39.2	39.2	30.0	22.4
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.31	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.60	1.60	0.06	14.63	1.52	0.69	1.24	0.13	0.11	7.51	7.51	16.4	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.53	0.02	0.87	0.61	0.18	0.45	0.26	0.11	0.80	0.80	0.93	0.17
d, Delay for Lane Group [s/veh]	50.62	24.55	18.75	55.70	25.01	20.25	41.20	25.41	24.34	46.7	46.7	46.4	22.6
Lane Group LOS	D	C	B	E	C	C	D	C	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.55	5.82	0.16	3.24	6.57	1.56	1.25	2.12	0.80	3.75	3.75	13.8	1.31
50th-Percentile Queue Length [ft/ln]	63.63	145.52	3.89	80.95	164.26	39.06	31.26	53.10	19.91	93.7	93.7	345.	32.6
95th-Percentile Queue Length [veh/ln]	4.58	9.78	0.28	5.83	10.77	2.81	2.25	3.82	1.43	6.75	6.75	19.9	2.35
95th-Percentile Queue Length [ft/ln]	114.53	244.43	7.00	145.71	269.35	70.31	56.27	95.58	35.83	168.	168.	497.	58.7

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.6	50.6	24.5	18.7	55.7	55.7	25.0	20.2	41.20	25.41	24.34	46.7	46.7	46.4	22.6
Movement LOS	D	D	C	B	E	E	C	C	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	27.82				27.43				29.57			44.41			
Approach LOS	C				C				C			D			
d_I, Intersection Delay [s/veh]	32.35														
Intersection LOS	C														
Intersection V/C	0.602														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.935	3.104	2.866	2.830
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	644	711
d_b, Bicycle Delay [s]	21.36	22.76	20.67	18.69
l_b,int, Bicycle LOS Score for Intersection	2.232	2.270	1.961	2.795
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.639

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	4	572	37	26	442	47	28	65	21	47	102	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	20	0	0	8	0	0	12
Total Hourly Volume [veh/h]	4	572	33	26	442	27	28	65	13	47	102	38
Peak Hour Factor	0.8040	0.8040	0.8040	0.8530	0.8530	0.8530	0.7630	0.7630	0.7630	0.6340	0.6340	0.6340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	178	10	8	130	8	9	21	4	19	40	15
Total Analysis Volume [veh/h]	5	711	41	30	518	32	37	85	17	74	161	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	11	29	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	39	39	3	41	8	14
g / C, Green / Cycle	0.01	0.48	0.48	0.04	0.52	0.10	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.38	0.03	0.02	0.30	0.08	0.17
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1851	1807	1784
c, Capacity [veh/h]	19	901	766	79	954	179	313
d1, Uniform Delay [s]	39.36	17.38	11.06	37.26	13.40	35.26	32.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.01	6.97	0.13	2.99	2.54	7.04	13.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.79	0.05	0.38	0.58	0.78	0.94
d, Delay for Lane Group [s/veh]	46.37	24.34	11.19	40.25	15.94	42.30	46.23
Lane Group LOS	D	C	B	D	B	D	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.13	11.63	0.39	0.63	6.83	2.94	6.65
50th-Percentile Queue Length [ft/ln]	3.33	290.69	9.77	15.68	170.78	73.42	166.13
95th-Percentile Queue Length [veh/ln]	0.24	17.22	0.70	1.13	11.12	5.29	10.87
95th-Percentile Queue Length [ft/ln]	6.00	430.49	17.59	28.22	277.94	132.15	271.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.37	24.34	11.19	40.25	15.94	15.94	42.30	42.30	42.30	46.23	46.23	46.23
Movement LOS	D	C	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	23.78			17.20			42.30			46.23		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	26.82											
Intersection LOS	C											
Intersection V/C	0.639											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.468	2.426	1.900	1.955
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	625	425	350
d_b, Bicycle Delay [s]	18.23	18.91	24.81	27.23
l_b,int, Bicycle LOS Score for Intersection	2.815	2.550	1.802	2.066
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	145	559	36	25	430	113	79	135	75	51	282	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	25	0	0	29	0	0	3
Total Hourly Volume [veh/h]	145	559	24	25	430	88	79	135	46	51	282	8
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	171	7	7	121	25	22	38	13	17	93	3
Total Analysis Volume [veh/h]	178	685	29	28	482	99	89	152	52	67	372	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	34	0	11	31	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	33	3	27	6	22	5	22
g / C, Green / Cycle	0.12	0.41	0.04	0.33	0.08	0.28	0.07	0.27
(v / s)_i Volume / Saturation Flow Rate	0.10	0.38	0.02	0.31	0.05	0.11	0.04	0.21
s, saturation flow rate [veh/h]	1781	1886	1810	1845	1810	1789	1781	1861
c, Capacity [veh/h]	215	777	74	612	137	500	121	505
d1, Uniform Delay [s]	34.37	22.29	37.39	26.09	35.96	23.47	36.11	26.74
k, delay calibration	0.11	0.38	0.11	0.33	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.85	14.43	3.14	19.70	5.08	2.46	3.87	10.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.92	0.38	0.95	0.65	0.41	0.55	0.76
d, Delay for Lane Group [s/veh]	42.22	36.72	40.53	45.79	41.04	25.93	39.98	36.93
Lane Group LOS	D	D	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.76	14.79	0.59	13.48	1.85	3.37	1.37	7.86
50th-Percentile Queue Length [ft/ln]	94.12	369.75	14.73	336.91	46.18	84.29	34.30	196.46
95th-Percentile Queue Length [veh/ln]	6.78	21.10	1.06	19.50	3.32	6.07	2.47	12.46
95th-Percentile Queue Length [ft/ln]	169.41	527.43	26.51	487.42	83.12	151.73	61.74	311.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.22	36.72	36.72	40.53	45.79	45.79	41.04	25.93	25.93	39.98	36.93	36.93
Movement LOS	D	D	D	D	D	D	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	37.82			45.54			30.52			37.38		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	38.87											
Intersection LOS	D											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.451	2.608	2.301	2.159
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	750	675	500	500
d_b, Bicycle Delay [s]	15.63	17.56	22.50	22.50
l_b,int, Bicycle LOS Score for Intersection	3.051	2.606	2.091	2.307
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	793	0	0	1368	0	293
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	793	0	0	1368	0	293
Peak Hour Factor	0.8650	1.0000	1.0000	0.8200	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	229	0	0	417	0	81
Total Analysis Volume [veh/h]	917	0	0	1668	0	326
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.59
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	20.66
Movement LOS	A			A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.85
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	96.19
d_A, Approach Delay [s/veh]	0.00		0.00		20.66	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.31					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.320

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	258	2	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	258	2	4	0
Peak Hour Factor	0.9000	0.9000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	129	1	2	0
Total Analysis Volume [veh/h]	0	0	516	4	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.32	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	25.89	8.35	8.28	0.00	0.00	0.00
Movement LOS	D	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.40	1.40	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	34.95	34.95	0.00	0.00
d_A, Approach Delay [s/veh]	17.12		8.22		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.09					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	27.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	252	967	12	11	1145	257	143	10	123	31	25	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	80	0	0	52	0	0	4
Total Hourly Volume [veh/h]	252	967	8	11	1145	177	143	10	71	31	25	6
Peak Hour Factor	0.7880	0.7880	0.7880	0.8820	0.8820	0.8820	0.8150	0.8150	0.8150	0.5180	0.5180	0.5180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	307	3	3	325	50	44	3	22	15	12	3
Total Analysis Volume [veh/h]	320	1227	10	12	1298	201	175	12	87	60	48	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	26	57	0	11	42	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	60	60	2	42	42	21	21	21	21
g / C, Green / Cycle	0.22	0.64	0.64	0.02	0.44	0.44	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.20	0.38	0.01	0.01	0.41	0.14	0.14	0.07	0.05	0.04
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1208	1457	1166	1626
c, Capacity [veh/h]	349	2041	911	33	1409	629	274	315	235	352
d1, Uniform Delay [s]	36.33	10.14	6.30	45.94	25.07	17.35	38.83	31.30	37.32	30.29
k, delay calibration	0.18	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.80	1.32	0.02	6.82	11.33	1.34	2.48	0.56	0.57	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.60	0.01	0.37	0.92	0.32	0.64	0.31	0.26	0.17
d, Delay for Lane Group [s/veh]	51.13	11.46	6.32	52.76	36.40	18.69	41.31	31.86	37.89	30.52
Lane Group LOS	D	B	A	D	D	B	D	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	8.54	7.04	0.07	0.34	15.21	3.02	4.11	1.94	1.29	1.13
50th-Percentile Queue Length [ft/ln]	213.40	175.89	1.83	8.49	380.28	75.49	102.79	48.46	32.37	28.26
95th-Percentile Queue Length [veh/ln]	13.33	11.39	0.13	0.61	21.61	5.44	7.40	3.49	2.33	2.03
95th-Percentile Queue Length [ft/ln]	333.18	284.64	3.29	15.27	540.18	135.88	185.01	87.23	58.27	50.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.13	11.46	6.32	52.76	36.40	18.69	41.31	31.86	31.86	37.89	30.52	30.52
Movement LOS	D	B	A	D	D	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	19.58			34.17			37.90			34.20		
Approach LOS	B			C			D			C		
d_I, Intersection Delay [s/veh]	27.90											
Intersection LOS	C											
Intersection V/C	0.750											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	3.045	3.309	2.335	2.003
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1116	800	484	484
d_b, Bicycle Delay [s]	9.28	17.10	27.28	27.28
l_b,int, Bicycle LOS Score for Intersection	2.847	2.872	2.098	1.764
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

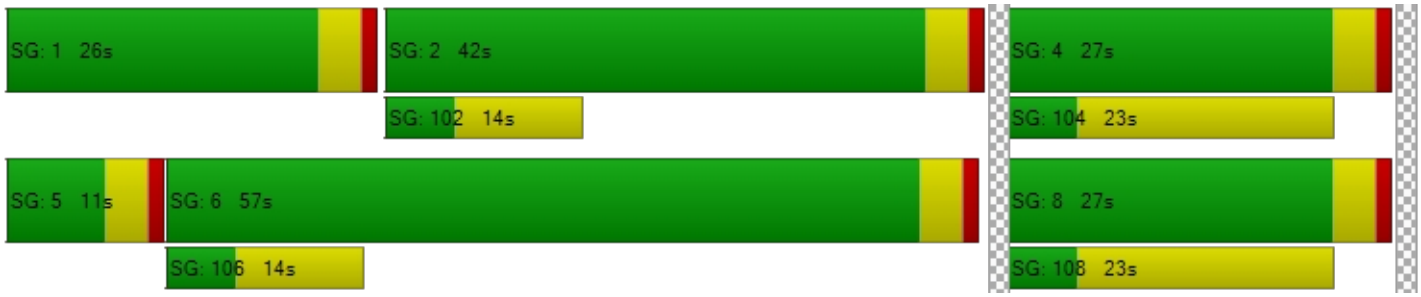


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Moreno Valley Elementary School

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Scenario 10 OY+P PM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	SB Left	0.353	20.8	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.211	24.3	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	WB Left	0.494	20.8	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.447	16.4	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.064	64.3	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.481	24.1	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.558	18.7	B
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	WB Left	0.721	38.8	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	WB Right	0.200	14.7	B
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	EB Left	0.146	7.6	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.512	12.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.353

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	45	303	24	22	239	25	21	180	81	23	150	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	7	0	0	11	0	0	27	0	0	2
Total Hourly Volume [veh/h]	45	303	17	22	239	14	21	180	54	23	150	17
Peak Hour Factor	0.9270	0.9270	0.9270	0.9360	0.9360	0.9360	0.8650	0.8650	0.8650	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	82	5	6	64	4	6	52	16	7	43	5
Total Analysis Volume [veh/h]	49	327	18	24	255	15	24	208	62	26	171	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	0	12	24	0	12	24	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	36	36	3	34	34	3	13	3	13	13
g / C, Green / Cycle	0.06	0.51	0.51	0.04	0.49	0.49	0.04	0.18	0.04	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.03	0.17	0.01	0.01	0.14	0.01	0.01	0.15	0.01	0.05	0.05
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1797	1781	1870	1806
c, Capacity [veh/h]	111	957	814	68	912	775	68	325	73	342	331
d1, Uniform Delay [s]	31.69	10.12	8.45	32.87	10.65	9.29	32.87	27.70	32.74	24.66	24.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.71	0.97	0.05	3.04	0.76	0.05	3.04	5.52	2.95	0.44	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.34	0.02	0.35	0.28	0.02	0.35	0.83	0.36	0.28	0.29
d, Delay for Lane Group [s/veh]	34.40	11.09	8.50	35.91	11.41	9.33	35.91	33.22	35.69	25.10	25.16
Lane Group LOS	C	B	A	D	B	A	D	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.86	2.87	0.13	0.44	2.28	0.12	0.44	4.65	0.48	1.35	1.34
50th-Percentile Queue Length [ft/ln]	21.46	71.74	3.28	11.08	56.94	2.92	11.08	116.26	11.91	33.87	33.49
95th-Percentile Queue Length [veh/ln]	1.55	5.17	0.24	0.80	4.10	0.21	0.80	8.19	0.86	2.44	2.41
95th-Percentile Queue Length [ft/ln]	38.63	129.13	5.91	19.94	102.49	5.25	19.94	204.68	21.43	60.97	60.28

Movement, Approach, & Intersection Results

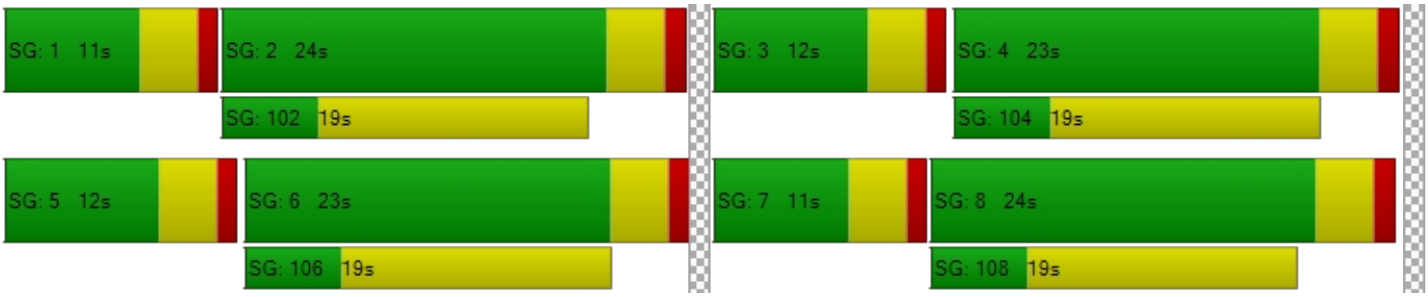
d_M, Delay for Movement [s/veh]	34.40	11.09	8.50	35.91	11.41	9.33	35.91	33.22	33.22	35.69	25.13	25.16
Movement LOS	C	B	A	D	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.87			13.31			33.44			26.40		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.79											
Intersection LOS	C											
Intersection V/C	0.353											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.318	2.301	2.297	2.239
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	543	571	571	543
d_b, Bicycle Delay [s]	18.58	17.86	17.86	18.58
l_b,int, Bicycle LOS Score for Intersection	2.221	2.063	2.089	1.739
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.211

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	110	34	24	78	20	29	190	10	30	195	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	4	0	0	4
Total Hourly Volume [veh/h]	8	110	30	24	78	15	29	190	6	30	195	18
Peak Hour Factor	0.8620	0.8620	0.8620	0.8550	0.8550	0.8550	0.8180	0.8180	0.8180	0.8020	0.8020	0.8020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	32	9	7	23	4	9	58	2	9	61	6
Total Analysis Volume [veh/h]	9	128	35	28	91	18	35	232	7	37	243	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	24	0	11	21	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	36	36	3	38	38	4	11	4	11	11
g / C, Green / Cycle	0.02	0.52	0.52	0.04	0.54	0.54	0.05	0.16	0.05	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.05	0.02	0.03	0.03	0.02	0.13	0.02	0.07	0.07
s, saturation flow rate [veh/h]	1781	1870	1737	1781	1870	1766	1781	1860	1781	1870	1816
c, Capacity [veh/h]	32	965	896	79	1013	957	92	296	95	301	292
d1, Uniform Delay [s]	34.05	8.62	8.64	32.61	7.59	7.60	32.24	28.51	32.14	26.64	26.67
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.68	0.17	0.20	2.72	0.10	0.11	2.59	5.23	2.58	1.03	1.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.09	0.09	0.36	0.05	0.06	0.38	0.81	0.39	0.44	0.45
d, Delay for Lane Group [s/veh]	38.73	8.79	8.84	35.33	7.70	7.72	34.83	33.74	34.72	27.67	27.75
Lane Group LOS	D	A	A	D	A	A	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.19	0.61	0.60	0.51	0.37	0.36	0.62	4.14	0.66	2.02	2.00
50th-Percentile Queue Length [ft/ln]	4.72	15.20	14.96	12.69	9.19	9.11	15.59	103.40	16.41	50.59	49.96
95th-Percentile Queue Length [veh/ln]	0.34	1.09	1.08	0.91	0.66	0.66	1.12	7.44	1.18	3.64	3.60
95th-Percentile Queue Length [ft/ln]	8.49	27.36	26.92	22.84	16.55	16.40	28.05	186.12	29.55	91.07	89.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.73	8.81	8.84	35.33	7.70	7.72	34.83	33.74	33.74	34.72	27.70	27.75
Movement LOS	D	A	A	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.38			13.35			33.88			28.57		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	24.32											
Intersection LOS	C											
Intersection V/C	0.211											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.356	2.360	2.260	2.273
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	486	571	571
d_b, Bicycle Delay [s]	17.86	20.06	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	1.705	1.677	2.018	1.812
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	65	789	267	12	960	85	121	147	87	186	151	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	53	0	0	27	0	0	42	0	0	11
Total Hourly Volume [veh/h]	65	789	214	12	960	58	121	147	45	186	151	7
Peak Hour Factor	0.8400	0.8400	0.8400	0.9570	0.9570	0.9570	0.7450	0.7450	0.7450	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	235	64	3	251	15	41	49	15	51	41	2
Total Analysis Volume [veh/h]	77	939	255	13	1003	61	162	197	60	203	164	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	17	32	0	15	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	49	49	2	45	45	10	7	7	11	9	9
g / C, Green / Cycle	0.07	0.58	0.58	0.02	0.53	0.53	0.11	0.08	0.08	0.13	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.04	0.26	0.16	0.01	0.28	0.04	0.09	0.06	0.04	0.11	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	125	2046	913	42	1879	839	201	300	134	231	362	161
d1, Uniform Delay [s]	38.48	10.47	9.18	40.94	13.23	9.89	36.89	37.81	37.12	36.39	36.04	34.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.83	0.74	0.76	4.22	1.09	0.17	7.47	2.44	2.33	10.12	0.89	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.46	0.28	0.31	0.53	0.07	0.81	0.66	0.45	0.88	0.45	0.05
d, Delay for Lane Group [s/veh]	43.31	11.21	9.94	45.15	14.33	10.05	44.36	40.25	39.45	46.52	36.93	34.68
Lane Group LOS	D	B	A	D	B	B	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.71	4.76	2.36	0.31	6.05	0.56	3.64	2.06	1.26	4.70	1.62	0.15
50th-Percentile Queue Length [ft/ln]	42.64	119.07	59.03	7.84	151.15	14.07	91.08	51.48	31.44	117.59	40.57	3.83
95th-Percentile Queue Length [veh/ln]	3.07	8.34	4.25	0.56	10.08	1.01	6.56	3.71	2.26	8.26	2.92	0.28
95th-Percentile Queue Length [ft/ln]	76.76	208.55	106.25	14.10	251.96	25.32	163.94	92.67	56.59	206.51	73.02	6.90

Movement, Approach, & Intersection Results

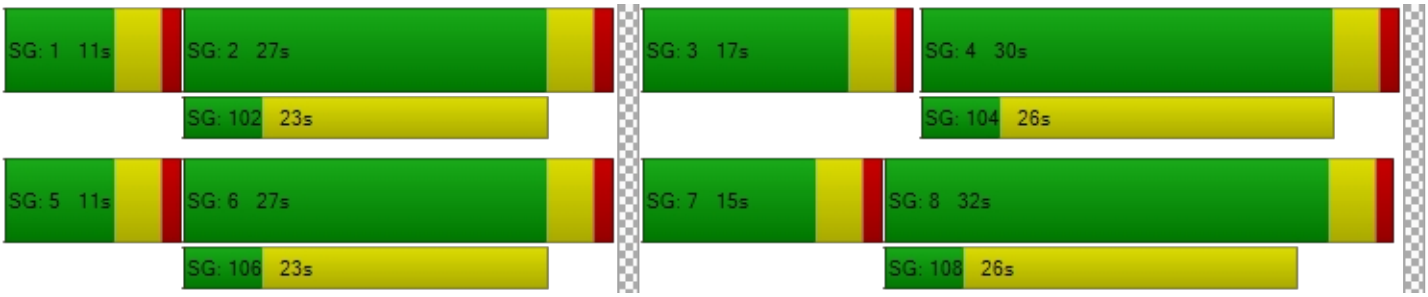
d_M, Delay for Movement [s/veh]	43.31	11.21	9.94	45.15	14.33	10.05	44.36	40.25	39.45	46.52	36.93	34.68
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	12.90			14.46			41.72			42.07		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.76											
Intersection LOS	C											
Intersection V/C	0.494											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.955	2.851	2.640	2.614
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	541	541	659	612
d_b, Bicycle Delay [s]	22.61	22.61	19.11	20.48
l_b,int, Bicycle LOS Score for Intersection	2.652	2.470	1.940	1.878
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.447

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	17	58	895	20	0	30	866	149	113	45	64	25	53	34
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	21	0	0	23	0	0	21
Total Hourly Volume [veh/h]	17	58	895	20	0	30	866	128	113	45	41	25	53	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.7900	0.7900	0.7900	0.7330	0.7330	0.7330
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	16	249	6	0	9	251	37	36	14	13	9	18	4
Total Analysis Volume [veh/h]	19	65	998	22	0	35	1002	148	143	57	52	34	72	18
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	11	21	0	0	11	21	0	13	32	0	11	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	42	42	4	40	40	8	10	10	4	6	6
g / C, Green / Cycle	0.08	0.56	0.56	0.05	0.53	0.53	0.10	0.13	0.13	0.05	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.05	0.28	0.01	0.02	0.28	0.09	0.08	0.03	0.03	0.02	0.04	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	140	1974	881	89	1872	836	182	250	212	88	151	128
d1, Uniform Delay [s]	33.51	10.38	7.58	34.61	11.77	9.32	32.97	29.14	29.20	34.66	33.08	32.17
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.06	0.93	0.05	2.77	1.10	0.46	7.27	0.46	0.59	2.77	2.34	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.51	0.02	0.39	0.54	0.18	0.79	0.23	0.25	0.39	0.48	0.14
d, Delay for Lane Group [s/veh]	37.57	11.31	7.63	37.38	12.87	9.79	40.24	29.60	29.80	37.44	35.42	32.67
Lane Group LOS	D	B	A	D	B	A	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.60	4.67	0.15	0.67	5.14	1.24	2.84	0.93	0.85	0.66	1.32	0.31
50th-Percentile Queue Length [ft/ln]	40.00	116.76	3.87	16.85	128.58	31.11	70.88	23.16	21.32	16.40	33.00	7.87
95th-Percentile Queue Length [veh/ln]	2.88	8.21	0.28	1.21	8.86	2.24	5.10	1.67	1.54	1.18	2.38	0.57
95th-Percentile Queue Length [ft/ln]	72.00	205.36	6.97	30.33	221.56	55.99	127.58	41.68	38.38	29.52	59.40	14.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.5	37.5	11.3	7.63	37.3	37.3	12.8	9.79	40.24	29.60	29.80	37.44	35.42	32.67
Movement LOS	D	D	B	A	D	D	B	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	13.23				13.21				35.68			35.58		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	16.38													
Intersection LOS	B													
Intersection V/C	0.447													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.805	2.863	2.298	2.216
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	453	453	747	693
d_b, Bicycle Delay [s]	22.43	22.43	14.73	16.01
l_b,int, Bicycle LOS Score for Intersection	2.417	2.526	2.013	1.799
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	64.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.064

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	1000	9	12	51	837	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1000	9	12	51	837	1	0
Peak Hour Factor	0.8710	0.8710	0.8770	0.8770	0.8770	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	287	3	3	15	239	1	0
Total Analysis Volume [veh/h]	1148	10	14	58	954	4	0
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.07	0.10	0.01	0.06	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	24.74	12.68	0.00	64.35	14.68
Movement LOS	A	A	C	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.59	0.59	0.00	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.00	0.00	14.85	14.85	0.00	2.44	2.44
d_A, Approach Delay [s/veh]	0.00		1.05			64.35	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	0.61						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	87	771	106	0	80	657	93	129	358	81	0	19	253	86
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	72	0	0	0	40	0	0	49	0	0	0	54
Total Hourly Volume [veh/h]	0	87	771	34	0	80	657	53	129	358	32	0	19	253	32
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.9770	0.9770	0.9770	0.91	0.91	0.91	0.91
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	25	219	10	0	23	189	15	33	92	8	0	5	69	9
Total Analysis Volume [veh/h]	0	99	877	39	0	92	754	61	132	366	33	0	21	276	35
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	36	0	0	11	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	46	6	45	45	7	18	18	5	5	15	15
g / C, Green / Cycle	0.07	0.51	0.51	0.07	0.50	0.50	0.08	0.19	0.19	0.05	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.25	0.02	0.05	0.15	0.04	0.04	0.10	0.02	0.01	0.01	0.15	0.02
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	129	1795	814	129	2561	799	262	707	310	94	94	326	277
d1, Uniform Delay [s]	41.08	14.71	11.36	40.99	13.08	11.59	40.03	32.48	29.81	41.0	41.0	36.2	31.6
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.14	0.95	0.11	7.18	0.29	0.19	1.49	0.59	0.15	1.19	1.19	6.10	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.49	0.05	0.72	0.29	0.08	0.50	0.52	0.11	0.22	0.22	0.85	0.13
d, Delay for Lane Group [s/veh]	50.22	15.66	11.47	48.17	13.37	11.77	41.52	33.07	29.96	42.1	42.1	42.3	31.8
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.46	5.76	0.40	2.23	2.88	0.65	1.44	3.57	0.59	0.47	0.47	6.32	0.65
50th-Percentile Queue Length [ft/ln]	61.50	143.96	10.11	55.79	71.95	16.13	36.10	89.31	14.86	11.8	11.8	158.	16.3
95th-Percentile Queue Length [veh/ln]	4.43	9.69	0.73	4.02	5.18	1.16	2.60	6.43	1.07	0.85	0.85	10.4	1.18
95th-Percentile Queue Length [ft/ln]	110.70	242.35	18.20	100.42	129.52	29.04	64.98	160.75	26.75	21.3	21.3	261.	29.4

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.2	50.2	15.6	11.4	48.1	48.1	13.3	11.7	41.52	33.07	29.96	42.1	42.1	42.3	31.8
Movement LOS	D	D	B	B	D	D	B	B	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	18.87				16.80				34.98			41.26			
Approach LOS	B				B				C			D			
d_I, Intersection Delay [s/veh]	24.07														
Intersection LOS	C														
Intersection V/C	0.481														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.969	3.033	2.812	2.686
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	711	711
d_b, Bicycle Delay [s]	21.36	22.76	18.69	18.69
l_b,int, Bicycle LOS Score for Intersection	2.456	2.030	2.038	2.162
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	18.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.558

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	7	536	37	63	743	34	17	37	11	40	45	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	14	0	0	4	0	0	12
Total Hourly Volume [veh/h]	7	536	33	63	743	20	17	37	7	40	45	38
Peak Hour Factor	0.8900	0.8900	0.8900	0.9510	0.9510	0.9510	0.8390	0.8390	0.8390	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	151	9	17	195	5	5	11	2	12	13	11
Total Analysis Volume [veh/h]	8	602	37	66	781	21	20	44	8	47	53	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	11	29	0	0	21	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	45	45	5	49	6	8
g / C, Green / Cycle	0.02	0.56	0.56	0.07	0.61	0.07	0.10
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.02	0.04	0.43	0.04	0.08
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1861	1809	1746
c, Capacity [veh/h]	28	1038	883	123	1132	129	184
d1, Uniform Delay [s]	39.02	11.70	8.12	36.11	10.81	36.04	35.02
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.35	2.36	0.09	3.63	3.75	3.77	7.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.58	0.04	0.54	0.71	0.56	0.79
d, Delay for Lane Group [s/veh]	44.37	14.06	8.21	39.75	14.57	39.81	42.35
Lane Group LOS	D	B	A	D	B	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.19	6.87	0.29	1.35	9.34	1.47	3.07
50th-Percentile Queue Length [ft/ln]	4.87	171.73	7.15	33.68	233.46	36.73	76.75
95th-Percentile Queue Length [veh/ln]	0.35	11.17	0.51	2.43	14.35	2.64	5.53
95th-Percentile Queue Length [ft/ln]	8.77	279.19	12.87	60.63	358.75	66.12	138.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.37	14.06	8.21	39.75	14.57	14.57	39.81	39.81	39.81	42.35	42.35	42.35
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.10			16.48			39.81			42.35		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.73											
Intersection LOS	B											
Intersection V/C	0.558											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.496	2.463	1.800	1.878
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	625	425	350
d_b, Bicycle Delay [s]	18.23	18.91	24.81	27.23
l_b,int, Bicycle LOS Score for Intersection	2.634	3.015	1.685	1.819
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	38.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	66	493	51	17	656	82	103	262	85	66	104	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	18	0	0	33	0	0	5
Total Hourly Volume [veh/h]	66	493	34	17	656	64	103	262	52	66	104	13
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	151	10	5	184	18	29	74	15	22	34	4
Total Analysis Volume [veh/h]	81	604	42	19	735	72	116	295	59	87	137	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	51	0	13	45	0	12	24	0	12	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	48	3	45	8	26	6	25
g / C, Green / Cycle	0.06	0.48	0.03	0.45	0.08	0.26	0.06	0.25
(v / s)_i Volume / Saturation Flow Rate	0.05	0.34	0.01	0.43	0.06	0.19	0.05	0.08
s, saturation flow rate [veh/h]	1781	1878	1810	1871	1810	1817	1781	1834
c, Capacity [veh/h]	112	910	52	842	144	478	114	453
d1, Uniform Delay [s]	46.02	20.28	47.66	26.57	45.24	33.73	46.07	30.95
k, delay calibration	0.11	0.21	0.11	0.37	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.57	1.96	4.19	18.33	9.86	9.92	10.14	2.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.71	0.36	0.96	0.80	0.74	0.76	0.34
d, Delay for Lane Group [s/veh]	54.59	22.24	51.86	44.90	55.10	43.65	56.21	32.98
Lane Group LOS	D	C	D	D	E	D	E	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.23	11.75	0.52	21.85	3.21	9.05	2.44	3.29
50th-Percentile Queue Length [ft/ln]	55.77	293.78	13.09	546.24	80.17	226.36	60.88	82.22
95th-Percentile Queue Length [veh/ln]	4.02	17.37	0.94	29.52	5.77	13.99	4.38	5.92
95th-Percentile Queue Length [ft/ln]	100.39	434.32	23.56	737.89	144.31	349.74	109.59	147.99

Movement, Approach, & Intersection Results

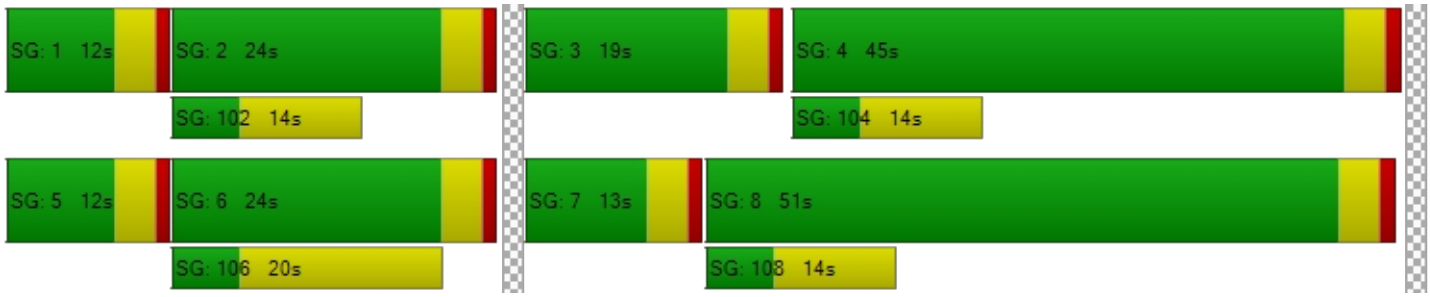
d_M, Delay for Movement [s/veh]	54.59	22.24	22.24	51.86	44.90	44.90	55.10	43.65	43.65	56.21	32.98	32.98
Movement LOS	D	C	C	D	D	D	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	25.85			45.06			46.48			41.36		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.79											
Intersection LOS	D											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	2.510	2.641	2.257	2.155
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	940	820	400	400
d_b, Bicycle Delay [s]	14.05	17.41	32.00	32.00
l_b,int, Bicycle LOS Score for Intersection	2.787	2.952	2.390	1.966
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.200

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	992	0	0	899	0	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	992	0	0	899	0	84
Peak Hour Factor	0.8710	1.0000	1.0000	0.8770	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	285	0	0	256	0	23
Total Analysis Volume [veh/h]	1139	0	0	1025	0	93
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.20
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	14.67
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.74
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	18.46
d_A, Approach Delay [s/veh]	0.00		0.00		14.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.60					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.146

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	59	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	59	1	1	0
Peak Hour Factor	0.9000	0.9000	0.2500	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	59	1	1	0
Total Analysis Volume [veh/h]	0	0	236	4	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.74	8.33	7.61	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.51	0.51	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	12.77	12.77	0.00	0.00
d_A, Approach Delay [s/veh]	10.54		7.48		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	7.36					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1115	18	13	935	123	119	3	54	12	6	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	38	0	0	23	0	0	3
Total Hourly Volume [veh/h]	59	1115	13	13	935	85	119	3	31	12	6	5
Peak Hour Factor	0.8880	0.8880	0.8880	0.8840	0.8840	0.8840	0.8550	0.8550	0.8550	0.5750	0.5750	0.5750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	314	4	4	264	24	35	1	9	5	3	2
Total Analysis Volume [veh/h]	66	1256	15	15	1058	96	139	4	36	21	10	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	39	0	14	36	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	52	52	2	49	49	14	14	14	14
g / C, Green / Cycle	0.07	0.65	0.65	0.02	0.61	0.61	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.39	0.01	0.01	0.33	0.07	0.11	0.03	0.02	0.01
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1254	1452	1230	1553
c, Capacity [veh/h]	108	2096	936	40	1960	875	256	248	237	265
d1, Uniform Delay [s]	36.27	7.87	4.84	38.38	9.01	6.47	33.86	28.29	31.58	27.85
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.41	1.28	0.03	5.58	1.07	0.25	1.79	0.30	0.16	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.60	0.02	0.37	0.54	0.11	0.54	0.16	0.09	0.07
d, Delay for Lane Group [s/veh]	41.68	9.15	4.87	43.96	10.08	6.72	35.65	28.59	31.74	27.97
Lane Group LOS	D	A	A	D	B	A	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.39	5.34	0.08	0.35	4.84	0.65	2.69	0.66	0.37	0.31
50th-Percentile Queue Length [ft/ln]	34.77	133.52	2.03	8.68	120.94	16.35	67.21	16.49	9.17	7.68
95th-Percentile Queue Length [veh/ln]	2.50	9.13	0.15	0.62	8.44	1.18	4.84	1.19	0.66	0.55
95th-Percentile Queue Length [ft/ln]	62.59	228.27	3.65	15.62	211.12	29.43	120.98	29.69	16.51	13.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.68	9.15	4.87	43.96	10.08	6.72	35.65	28.59	28.59	31.74	27.97	27.97
Movement LOS	D	A	A	D	B	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.71			10.24			34.07			29.95		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	12.32											
Intersection LOS	B											
Intersection V/C	0.512											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.889	3.125	2.102	1.967
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	875	800	575	575
d_b, Bicycle Delay [s]	12.66	14.40	20.31	20.31
I_b,int, Bicycle LOS Score for Intersection	2.667	2.555	1.893	1.631
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

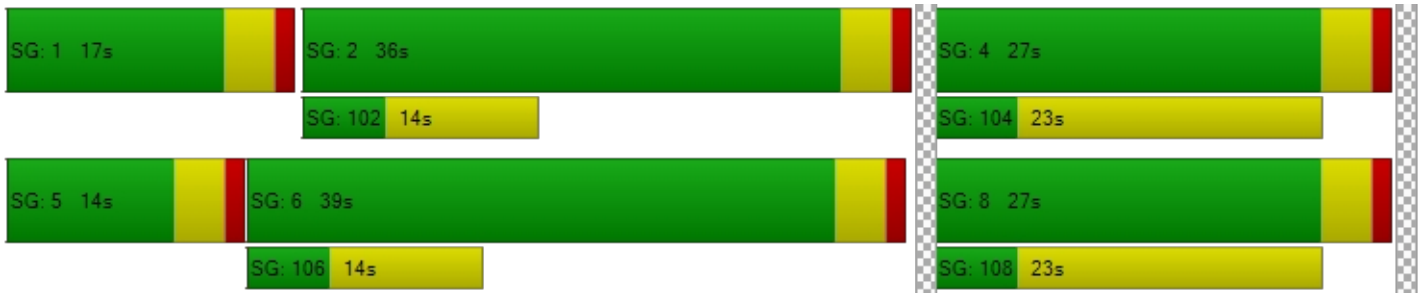


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Moreno Valley Elementary School

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Scenario 14 CU AM
5/26/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.471	23.9	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	EB Left	0.463	25.7	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	NB Left	0.736	35.7	D
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.548	19.8	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.046	48.8	E
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	NB Left	0.634	32.7	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	EB Thru	0.652	25.8	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	WB Left	0.691	40.1	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	SB Thru	0.014	0.0	A
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	WB Thru	0.000	0.0	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.726	25.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	23.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.471

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	98	337	88	25	270	75	30	190	65	73	306	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	27	0	0	32	0	0	21	0	0	6
Total Hourly Volume [veh/h]	98	337	61	25	270	43	30	190	44	73	306	41
Peak Hour Factor	0.8230	0.8230	0.8230	0.8070	0.8070	0.8070	0.7500	0.7500	0.7500	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	102	19	8	84	13	10	63	15	23	98	13
Total Analysis Volume [veh/h]	119	409	74	31	335	53	40	253	59	94	392	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	25	0	11	23	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	31	31	3	28	28	4	14	6	16	16
g / C, Green / Cycle	0.09	0.44	0.44	0.05	0.39	0.39	0.06	0.20	0.08	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.07	0.22	0.05	0.02	0.18	0.03	0.02	0.17	0.05	0.12	0.12
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1810	1781	1870	1793
c, Capacity [veh/h]	163	818	695	84	735	625	100	365	153	432	415
d1, Uniform Delay [s]	31.05	14.23	11.66	32.44	15.76	13.38	32.01	27.05	31.01	23.62	23.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.06	2.18	0.31	2.65	2.03	0.27	2.56	5.76	4.00	0.98	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.50	0.11	0.37	0.46	0.08	0.40	0.85	0.62	0.52	0.53
d, Delay for Lane Group [s/veh]	37.11	16.40	11.97	35.09	17.79	13.65	34.57	32.81	35.01	24.61	24.69
Lane Group LOS	D	B	B	D	B	B	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.17	4.70	0.68	0.56	4.05	0.53	0.71	5.36	1.65	3.23	3.13
50th-Percentile Queue Length [ft/ln]	54.14	117.58	17.09	13.93	101.26	13.37	17.66	134.06	41.31	80.79	78.35
95th-Percentile Queue Length [veh/ln]	3.90	8.26	1.23	1.00	7.29	0.96	1.27	9.16	2.97	5.82	5.64
95th-Percentile Queue Length [ft/ln]	97.46	206.50	30.75	25.07	182.27	24.06	31.79	229.00	74.37	145.42	141.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.11	16.40	11.97	35.09	17.79	13.65	34.57	32.81	32.81	35.01	24.64	24.69
Movement LOS	D	B	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	19.95			18.55			33.01			26.46		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	23.88											
Intersection LOS	C											
Intersection V/C	0.471											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.436	2.399	2.386	2.355
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	543	543	543
d_b, Bicycle Delay [s]	17.15	18.58	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.597	2.304	2.175	2.009
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	25.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	224	97	76	167	80	78	253	12	64	281	118
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	20	0	0	4	0	0	24
Total Hourly Volume [veh/h]	31	224	84	76	167	60	78	253	8	64	281	94
Peak Hour Factor	0.6600	0.6600	0.6600	0.8380	0.8380	0.8380	0.6310	0.6310	0.6310	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	85	32	23	50	18	31	100	3	25	112	37
Total Analysis Volume [veh/h]	47	339	127	91	199	72	124	401	13	102	446	149
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	27	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	24	24	6	26	26	6	18	6	17	17
g / C, Green / Cycle	0.06	0.35	0.35	0.08	0.37	0.37	0.09	0.25	0.09	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.13	0.05	0.07	0.08	0.07	0.22	0.06	0.17	0.17
s, saturation flow rate [veh/h]	1781	1870	1700	1781	1870	1705	1781	1860	1781	1870	1712
c, Capacity [veh/h]	110	649	590	151	691	630	165	470	157	464	425
d1, Uniform Delay [s]	31.75	17.21	17.26	31.02	15.09	15.13	31.07	25.23	31.00	23.81	23.84
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.58	1.64	1.86	3.84	0.66	0.75	6.67	5.52	4.52	1.67	1.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.37	0.38	0.60	0.20	0.21	0.75	0.88	0.65	0.67	0.67
d, Delay for Lane Group [s/veh]	34.33	18.85	19.13	34.85	15.75	15.88	37.74	30.75	35.52	25.48	25.70
Lane Group LOS	C	B	B	C	B	B	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.82	3.02	2.84	1.60	1.54	1.47	2.28	6.94	1.81	4.58	4.25
50th-Percentile Queue Length [ft/ln]	20.58	75.45	70.99	39.89	38.40	36.69	56.98	173.53	45.21	114.57	106.28
95th-Percentile Queue Length [veh/ln]	1.48	5.43	5.11	2.87	2.76	2.64	4.10	11.26	3.26	8.09	7.63
95th-Percentile Queue Length [ft/ln]	37.04	135.81	127.77	71.81	69.12	66.04	102.57	281.55	81.38	202.34	190.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.33	18.93	19.13	34.85	15.79	15.88	37.74	30.75	30.75	35.52	25.55	25.70
Movement LOS	C	B	B	C	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	20.39			20.60			32.36			27.04		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.67											
Intersection LOS	C											
Intersection V/C	0.463											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.472	2.516	2.400	2.484
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	657	571
d_b, Bicycle Delay [s]	20.06	20.06	15.78	17.86
l_b,int, Bicycle LOS Score for Intersection	1.994	1.875	2.454	2.154
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.736

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	82	783	161	10	1197	95	224	207	252	137	138	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	32	0	0	30	0	0	121	0	0	19
Total Hourly Volume [veh/h]	82	783	129	10	1197	65	224	207	131	137	138	12
Peak Hour Factor	0.8440	0.8440	0.8440	0.7930	0.7930	0.7930	0.6080	0.6080	0.6080	0.7620	0.7620	0.7620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	232	38	3	377	20	92	85	54	45	45	4
Total Analysis Volume [veh/h]	97	928	153	13	1509	82	368	340	215	180	181	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	26	42	0	11	27	0	37	30	0	37	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	66	66	3	61	61	27	21	21	14	8	8
g / C, Green / Cycle	0.07	0.55	0.55	0.02	0.50	0.50	0.22	0.17	0.17	0.12	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.10	0.01	0.42	0.05	0.21	0.10	0.14	0.10	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	123	1963	876	38	1793	800	399	623	278	212	249	111
d1, Uniform Delay [s]	55.00	16.34	13.37	57.91	25.67	15.60	45.59	45.17	47.25	51.85	54.69	52.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.27	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	0.82	0.43	5.16	4.98	0.26	19.03	0.75	4.56	9.17	3.99	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.47	0.17	0.34	0.84	0.10	0.92	0.55	0.77	0.85	0.73	0.14
d, Delay for Lane Group [s/veh]	65.48	17.16	13.80	63.06	30.66	15.85	64.61	45.92	51.81	61.02	58.69	53.03
Lane Group LOS	E	B	B	E	C	B	E	D	D	E	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.25	7.78	2.14	0.44	19.11	1.24	12.78	4.69	6.48	5.85	2.82	0.47
50th-Percentile Queue Length [ft/ln]	81.19	194.54	53.61	11.11	477.64	30.91	319.38	117.35	161.90	146.15	70.52	11.82
95th-Percentile Queue Length [veh/ln]	5.85	12.36	3.86	0.80	26.27	2.23	18.64	8.25	10.65	9.81	5.08	0.85
95th-Percentile Queue Length [ft/ln]	146.15	308.91	96.51	20.00	656.86	55.64	465.93	206.18	266.24	245.28	126.93	21.28

Movement, Approach, & Intersection Results

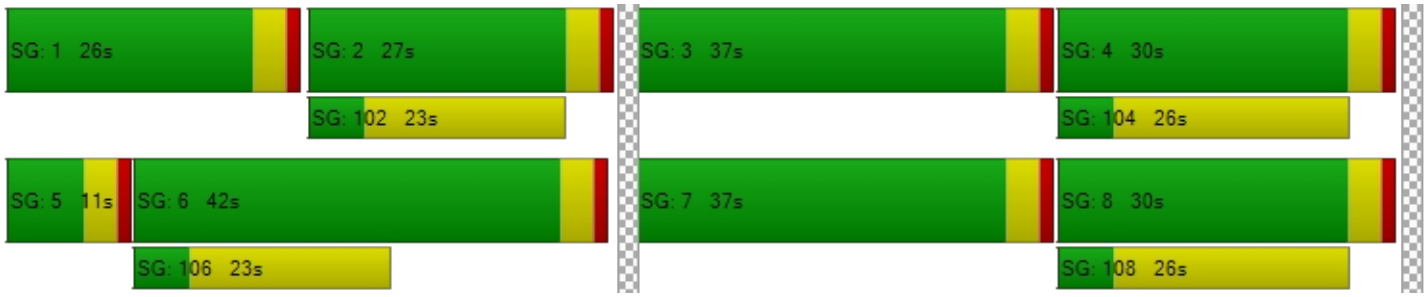
d_M, Delay for Movement [s/veh]	65.48	17.16	13.80	63.06	30.66	15.85	64.61	45.92	51.81	61.02	58.69	53.03
Movement LOS	E	B	B	E	C	B	E	D	D	E	E	D
d_A, Approach Delay [s/veh]	20.70			30.16			54.74			59.56		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	35.71											
Intersection LOS	D											
Intersection V/C	0.736											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.039	2.993	2.873	2.647
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	383	433	433
d_b, Bicycle Delay [s]	28.02	39.20	36.82	36.82
l_b,int, Bicycle LOS Score for Intersection	2.558	2.908	2.421	1.886
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.548

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	0	57	788	4	0	42	1047	155	127	65	71	7	68	114
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	22	0	0	26	0	0	70
Total Hourly Volume [veh/h]	0	57	788	4	0	42	1047	133	127	65	45	7	68	44
Peak Hour Factor	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.7840	0.7840	0.7840	0.6980	0.6980	0.6980
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	17	239	1	0	13	326	41	40	21	14	3	24	16
Total Analysis Volume [veh/h]	0	69	956	5	0	52	1304	166	162	83	57	10	97	63
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	20	30	0	0	11	21	0	29	30	0	29	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	60	60	5	60	60	11	17	17	2	7	7
g / C, Green / Cycle	0.06	0.60	0.60	0.05	0.59	0.59	0.11	0.17	0.17	0.02	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.04	0.27	0.00	0.03	0.37	0.10	0.09	0.04	0.04	0.01	0.05	0.04
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	108	2136	953	97	2114	944	199	313	266	32	139	118
d1, Uniform Delay [s]	45.95	10.96	8.04	46.10	13.04	9.23	43.49	36.30	35.98	48.54	45.25	44.67
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.10	0.68	0.01	4.50	1.36	0.41	7.93	0.45	0.40	5.26	6.18	3.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.45	0.01	0.53	0.62	0.18	0.82	0.26	0.21	0.31	0.70	0.53
d, Delay for Lane Group [s/veh]	52.06	11.64	8.05	50.60	14.40	9.64	51.42	36.75	36.38	53.80	51.43	48.37
Lane Group LOS	D	B	A	D	B	A	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.85	5.56	0.04	1.38	9.01	1.66	4.33	1.80	1.23	0.29	2.58	1.62
50th-Percentile Queue Length [ft/ln]	46.29	139.05	1.09	34.39	225.36	41.47	108.18	44.97	30.68	7.33	64.43	40.52
95th-Percentile Queue Length [veh/ln]	3.33	9.43	0.08	2.48	13.94	2.99	7.74	3.24	2.21	0.53	4.64	2.92
95th-Percentile Queue Length [ft/ln]	83.32	235.74	1.97	61.90	348.46	74.65	193.47	80.95	55.23	13.19	115.98	72.94

Movement, Approach, & Intersection Results

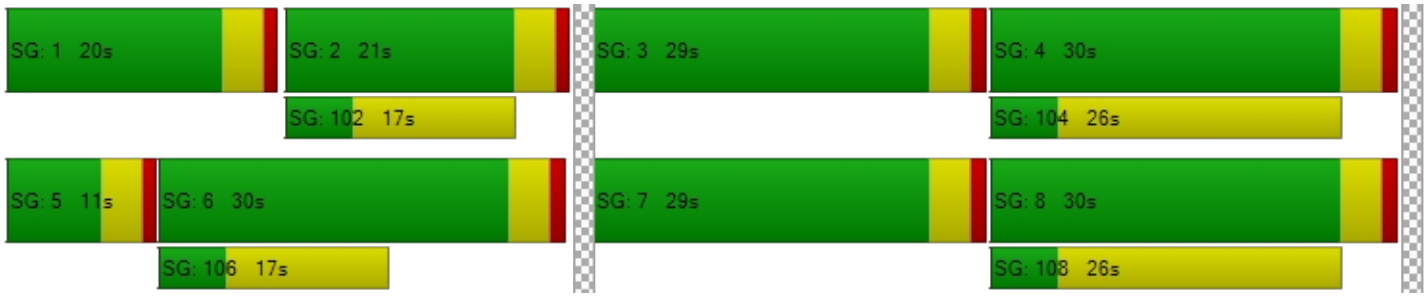
d_M, Delay for Movement [s/veh]	52.0	52.0	11.6	8.05	50.6	50.6	14.4	9.64	51.42	36.75	36.38	53.80	51.43	48.37
Movement LOS	D	D	B	A	D	D	B	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.33				15.12				44.55			50.43		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	19.78													
Intersection LOS	B													
Intersection V/C	0.548													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	2.854	2.945	2.341	2.330
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	520	340	520	520
d_b, Bicycle Delay [s]	27.38	34.45	27.38	27.38
l_b,int, Bicycle LOS Score for Intersection	2.352	2.791	2.101	1.956
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	48.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	856	1	0	1	1119	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	856	1	0	1	1119	2	2
Peak Hour Factor	0.8650	0.8650	0.8200	0.8200	0.8200	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	247	0	0	0	341	1	1
Total Analysis Volume [veh/h]	990	1	0	1	1365	4	4
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.05	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	19.24	10.20	0.00	48.79	11.98
Movement LOS	A	A	C	B	A	E	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.08	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.11	0.11	0.00	2.09	0.58
d_A, Approach Delay [s/veh]	0.00		0.01			30.38	
Approach LOS	A		A			D	
d_I, Intersection Delay [s/veh]	0.11						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	109	617	43	0	71	920	123	85	252	196	0	126	442	146
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	29	0	0	0	53	0	0	120	0	0	0	92
Total Hourly Volume [veh/h]	0	109	617	14	0	71	920	70	85	252	76	0	126	442	54
Peak Hour Factor	0.87	0.87	0.87	0.87	0.75	0.75	0.75	0.75	0.7940	0.7940	0.7940	0.78	0.78	0.78	0.78
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	31	177	4	0	23	303	23	27	79	24	0	40	140	17
Total Analysis Volume [veh/h]	0	125	708	16	0	94	1212	92	107	317	96	0	160	560	68
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	33	0	0	14	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	33	33	6	31	31	7	25	25	10	10	29	29
g / C, Green / Cycle	0.09	0.36	0.36	0.07	0.35	0.35	0.07	0.28	0.28	0.11	0.11	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.01	0.05	0.24	0.06	0.03	0.09	0.06	0.09	0.09	0.29	0.04
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	157	1290	585	128	1758	549	252	1012	445	198	198	601	511
d1, Uniform Delay [s]	40.29	22.87	18.50	41.01	25.35	20.50	39.95	25.61	24.87	39.1	39.1	29.8	21.9
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.32	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.91	1.68	0.09	7.78	2.24	0.66	1.13	0.18	0.24	7.60	7.60	16.9	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.55	0.03	0.73	0.69	0.17	0.42	0.31	0.22	0.81	0.81	0.93	0.13
d, Delay for Lane Group [s/veh]	49.20	24.55	18.59	48.79	27.58	21.16	41.08	25.78	25.11	46.7	46.7	46.8	22.1
Lane Group LOS	D	C	B	D	C	C	D	C	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.07	6.08	0.23	2.30	7.52	1.42	1.16	2.65	1.57	3.82	3.82	14.1	1.02
50th-Percentile Queue Length [ft/ln]	76.69	151.94	5.63	57.41	187.97	35.46	29.02	66.26	39.35	95.5	95.5	352.	25.6
95th-Percentile Queue Length [veh/ln]	5.52	10.12	0.41	4.13	12.02	2.55	2.09	4.77	2.83	6.88	6.88	20.2	1.84
95th-Percentile Queue Length [ft/ln]	138.05	253.01	10.14	103.33	300.40	63.83	52.24	119.27	70.83	172.	172.	506.	46.1

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.2	49.2	24.5	18.5	48.7	48.7	27.5	21.1	41.08	25.78	25.11	46.7	46.7	46.8	22.1
Movement LOS	D	D	C	B	D	D	C	C	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	28.07				28.58				28.81			45.05			
Approach LOS	C				C				C			D			
d_I, Intersection Delay [s/veh]	32.70														
Intersection LOS	C														
Intersection V/C	0.634														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.980	3.098	2.971	2.802
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	644	711
d_b, Bicycle Delay [s]	21.36	22.76	20.67	18.69
l_b,int, Bicycle LOS Score for Intersection	2.284	2.306	2.088	2.748
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	648	39	26	466	20	35	50	10	48	68	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	8	0	0	4	0	0	12
Total Hourly Volume [veh/h]	15	648	34	26	466	12	35	50	6	48	68	38
Peak Hour Factor	0.8040	0.8040	0.8040	0.8530	0.8530	0.8530	0.7630	0.7630	0.7630	0.6340	0.6340	0.6340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	201	11	8	137	4	11	16	2	19	27	15
Total Analysis Volume [veh/h]	19	806	42	30	546	14	46	66	8	76	107	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	15	0	11	15	0	0	40	0	0	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	45	45	4	46	7	14
g / C, Green / Cycle	0.03	0.52	0.52	0.04	0.54	0.09	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.43	0.03	0.02	0.30	0.07	0.14
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1862	1814	1765
c, Capacity [veh/h]	54	979	832	76	997	157	281
d1, Uniform Delay [s]	40.42	16.98	9.92	39.67	13.13	38.02	34.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.78	7.80	0.11	3.31	2.29	7.49	7.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.82	0.05	0.40	0.56	0.76	0.86
d, Delay for Lane Group [s/veh]	44.20	24.78	10.04	42.98	15.41	45.51	42.69
Lane Group LOS	D	C	B	D	B	D	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.44	13.95	0.39	0.67	7.09	2.73	5.40
50th-Percentile Queue Length [ft/ln]	11.04	348.67	9.67	16.81	177.29	68.26	134.92
95th-Percentile Queue Length [veh/ln]	0.80	20.07	0.70	1.21	11.46	4.91	9.21
95th-Percentile Queue Length [ft/ln]	19.88	501.79	17.40	30.25	286.47	122.87	230.17

Movement, Approach, & Intersection Results

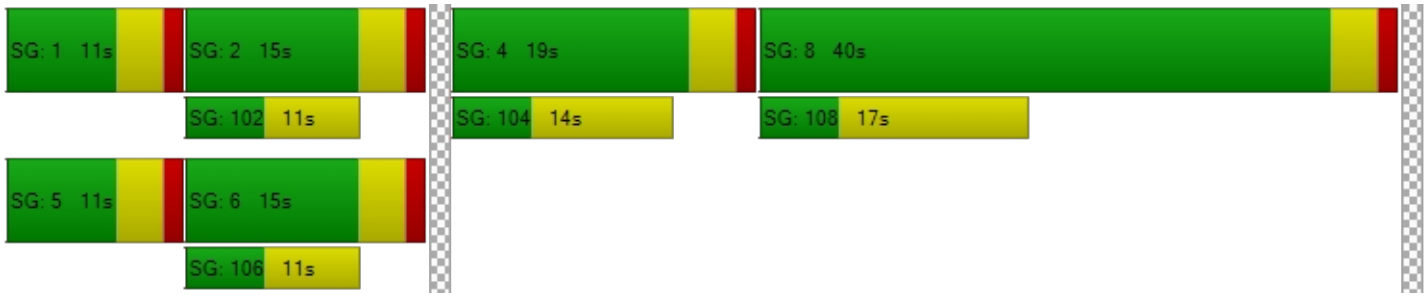
d_M, Delay for Movement [s/veh]	44.20	24.78	10.04	42.98	15.41	15.41	45.51	45.51	45.51	42.69	42.69	42.69
Movement LOS	D	C	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	24.49			16.81			45.51			42.69		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	25.82											
Intersection LOS	C											
Intersection V/C	0.652											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.504	2.445	1.852	1.925
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	259	259	847	353
d_b, Bicycle Delay [s]	32.21	32.21	14.12	28.82
l_b,int, Bicycle LOS Score for Intersection	2.998	2.546	1.764	1.980
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	40.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	149	590	36	14	428	116	82	135	75	85	295	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	26	0	0	29	0	0	7
Total Hourly Volume [veh/h]	149	590	24	14	428	90	82	135	46	85	295	17
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	181	7	4	120	25	23	38	13	28	97	6
Total Analysis Volume [veh/h]	183	723	29	16	480	101	92	152	52	112	389	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	39	0	11	35	0	11	19	0	16	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	37	2	29	6	23	7	24
g / C, Green / Cycle	0.12	0.43	0.03	0.34	0.07	0.27	0.08	0.28
(v / s)_i Volume / Saturation Flow Rate	0.10	0.40	0.01	0.32	0.05	0.11	0.06	0.22
s, saturation flow rate [veh/h]	1781	1887	1810	1843	1810	1789	1781	1852
c, Capacity [veh/h]	220	816	48	619	133	486	144	517
d1, Uniform Delay [s]	36.45	22.77	40.67	27.39	38.47	25.47	38.36	28.42
k, delay calibration	0.11	0.35	0.11	0.34	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.99	13.27	3.93	18.31	6.24	2.65	8.69	11.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.92	0.33	0.94	0.69	0.42	0.78	0.80
d, Delay for Lane Group [s/veh]	44.44	36.04	44.60	45.70	44.71	28.11	47.05	40.38
Lane Group LOS	D	D	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.13	16.15	0.38	14.00	2.07	3.65	2.60	9.19
50th-Percentile Queue Length [ft/ln]	103.13	403.68	9.44	350.07	51.83	91.35	64.98	229.73
95th-Percentile Queue Length [veh/ln]	7.43	22.74	0.68	20.14	3.73	6.58	4.68	14.16
95th-Percentile Queue Length [ft/ln]	185.64	568.43	16.99	503.50	93.30	164.42	116.97	354.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.44	36.04	36.04	44.60	45.70	45.70	44.71	28.11	28.11	47.05	40.38	40.38
Movement LOS	D	D	D	D	D	D	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	37.69			45.67			33.27			41.81		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	40.08											
Intersection LOS	D											
Intersection V/C	0.691											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.482	2.622	2.313	2.189
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	824	729	353	471
d_b, Bicycle Delay [s]	14.71	17.15	28.82	24.85
l_b,int, Bicycle LOS Score for Intersection	3.122	2.588	2.096	2.434
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	858	0	0	1120	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	858	0	0	1120	0	0
Peak Hour Factor	0.8650	1.0000	1.0000	0.8200	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	248	0	0	341	0	0
Total Analysis Volume [veh/h]	992	0	0	1366	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.93
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		11.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	2	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	2	4	0
Peak Hour Factor	0.9000	0.9000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	2	0
Total Analysis Volume [veh/h]	0	0	0	4	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.57	8.35	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.46		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.726

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	223	984	12	11	1144	257	143	10	89	31	25	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	80	0	0	37	0	0	4
Total Hourly Volume [veh/h]	223	984	8	11	1144	177	143	10	52	31	25	6
Peak Hour Factor	0.7880	0.7880	0.7880	0.8820	0.8820	0.8820	0.8150	0.8150	0.8150	0.5180	0.5180	0.5180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	312	3	3	324	50	44	3	16	15	12	3
Total Analysis Volume [veh/h]	283	1249	10	12	1297	201	175	12	64	60	48	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	62	0	11	46	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	65	65	2	47	47	21	21	21	21
g / C, Green / Cycle	0.20	0.65	0.65	0.02	0.47	0.47	0.21	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.18	0.39	0.01	0.01	0.40	0.14	0.14	0.05	0.05	0.04
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1208	1465	1191	1626
c, Capacity [veh/h]	313	2071	924	32	1510	674	268	313	250	347
d1, Uniform Delay [s]	39.34	10.26	6.30	48.37	23.48	16.26	41.03	32.61	38.10	32.10
k, delay calibration	0.15	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.60	1.31	0.02	6.98	6.57	1.13	2.68	0.40	0.49	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.60	0.01	0.37	0.86	0.30	0.65	0.24	0.24	0.17
d, Delay for Lane Group [s/veh]	51.94	11.57	6.32	55.35	30.06	17.39	43.72	33.01	38.59	32.33
Lane Group LOS	D	B	A	E	C	B	D	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	7.79	7.49	0.08	0.36	14.25	2.97	4.37	1.55	1.34	1.20
50th-Percentile Queue Length [ft/ln]	194.69	187.21	1.89	8.92	356.19	74.35	109.24	38.84	33.61	30.08
95th-Percentile Queue Length [veh/ln]	12.36	11.98	0.14	0.64	20.44	5.35	7.80	2.80	2.42	2.17
95th-Percentile Queue Length [ft/ln]	309.11	299.40	3.39	16.05	510.95	133.83	194.95	69.91	60.49	54.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.94	11.57	6.32	55.35	30.06	17.39	43.72	33.01	33.01	38.59	32.33	32.33
Movement LOS	D	B	A	E	C	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	18.94			28.57			40.47			35.46		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	25.35											
Intersection LOS	C											
Intersection V/C	0.726											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	3.039	3.315	2.292	2.005
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1160	840	460	460
d_b, Bicycle Delay [s]	8.82	16.82	29.65	29.65
l_b,int, Bicycle LOS Score for Intersection	2.835	2.871	2.035	1.764
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Moreno Valley Elementary School

Vistro File: Z:\...\MORE36 -Final.vistro
Report File: Z:\...\Cumulative PM.pdf

Scenario 13 CU PM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	SB Left	0.385	22.0	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.206	24.0	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	NB Left	0.541	21.8	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.462	17.1	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.055	55.5	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	SB Left	0.524	27.0	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	EB Thru	0.621	20.8	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	WB Left	0.784	45.3	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	NB Thru	0.013	0.0	A
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	WB Thru	0.000	0.0	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.506	12.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	72	310	43	14	253	25	21	187	92	56	173	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	11	0	0	30	0	0	1
Total Hourly Volume [veh/h]	72	310	30	14	253	14	21	187	62	56	173	10
Peak Hour Factor	0.9270	0.9270	0.9270	0.9360	0.9360	0.9360	0.8650	0.8650	0.8650	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	84	8	4	68	4	6	54	18	16	49	3
Total Analysis Volume [veh/h]	78	334	32	15	270	15	24	216	72	64	198	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	0	12	24	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	34	34	2	30	30	3	13	5	16	16
g / C, Green / Cycle	0.08	0.48	0.48	0.03	0.43	0.43	0.04	0.19	0.07	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.02	0.01	0.14	0.01	0.01	0.16	0.04	0.06	0.06
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1791	1781	1870	1836
c, Capacity [veh/h]	142	898	764	49	800	680	70	343	130	421	413
d1, Uniform Delay [s]	31.10	11.54	9.68	33.52	13.44	11.61	32.86	27.37	31.30	22.35	22.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.26	1.18	0.10	3.52	1.14	0.06	2.85	5.55	2.84	0.31	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.37	0.04	0.31	0.34	0.02	0.34	0.84	0.49	0.25	0.25
d, Delay for Lane Group [s/veh]	34.36	12.73	9.78	37.04	14.58	11.67	35.71	32.93	34.15	22.66	22.68
Lane Group LOS	C	B	A	D	B	B	D	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.36	3.22	0.26	0.29	2.85	0.14	0.44	4.95	1.11	1.40	1.38
50th-Percentile Queue Length [ft/ln]	33.93	80.52	6.42	7.27	71.21	3.39	11.03	123.73	27.78	34.88	34.60
95th-Percentile Queue Length [veh/ln]	2.44	5.80	0.46	0.52	5.13	0.24	0.79	8.60	2.00	2.51	2.49
95th-Percentile Queue Length [ft/ln]	61.07	144.93	11.56	13.09	128.17	6.11	19.85	214.94	50.01	62.78	62.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.36	12.73	9.78	37.04	14.58	11.67	35.71	32.93	32.93	34.15	22.67	22.68
Movement LOS	C	B	A	D	B	B	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.31			15.56			33.14			25.36		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.95											
Intersection LOS	C											
Intersection V/C	0.385											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.356	2.302	2.320	2.255
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	543	571	571	571
d_b, Bicycle Delay [s]	18.58	17.86	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	2.314	2.073	2.124	1.786
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.206

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	119	30	20	93	20	29	189	10	26	209	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	4	0	0	4
Total Hourly Volume [veh/h]	8	119	26	20	93	15	29	189	6	26	209	14
Peak Hour Factor	0.8620	0.8620	0.8620	0.8550	0.8550	0.8550	0.8180	0.8180	0.8180	0.8020	0.8020	0.8020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	35	8	6	27	4	9	58	2	8	65	4
Total Analysis Volume [veh/h]	9	138	30	23	109	18	35	231	7	32	261	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	24	0	11	21	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	37	37	3	39	39	4	11	3	11	11
g / C, Green / Cycle	0.02	0.53	0.53	0.04	0.55	0.55	0.05	0.16	0.05	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.05	0.01	0.03	0.04	0.02	0.13	0.02	0.07	0.08
s, saturation flow rate [veh/h]	1781	1870	1758	1781	1870	1780	1781	1860	1781	1870	1830
c, Capacity [veh/h]	32	986	927	68	1024	974	92	295	86	291	284
d1, Uniform Delay [s]	34.05	8.23	8.24	32.92	7.45	7.46	32.24	28.53	32.39	27.08	27.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.68	0.17	0.19	2.90	0.12	0.13	2.59	5.22	2.63	1.23	1.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.09	0.09	0.34	0.06	0.06	0.38	0.81	0.37	0.48	0.49
d, Delay for Lane Group [s/veh]	38.73	8.40	8.43	35.82	7.57	7.59	34.83	33.75	35.02	28.32	28.39
Lane Group LOS	D	A	A	D	A	A	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.19	0.61	0.60	0.42	0.42	0.42	0.62	4.12	0.57	2.15	2.13
50th-Percentile Queue Length [ft/ln]	4.72	15.14	14.93	10.61	10.58	10.49	15.59	102.96	14.34	53.81	53.30
95th-Percentile Queue Length [veh/ln]	0.34	1.09	1.07	0.76	0.76	0.75	1.12	7.41	1.03	3.87	3.84
95th-Percentile Queue Length [ft/ln]	8.49	27.24	26.87	19.10	19.04	18.87	28.05	185.33	25.82	96.85	95.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.73	8.41	8.43	35.82	7.58	7.59	34.83	33.75	33.75	35.02	28.35	28.39
Movement LOS	D	A	A	D	A	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	9.96			11.91			33.89			29.04		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	23.96											
Intersection LOS	C											
Intersection V/C	0.206											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.359	2.364	2.265	2.272
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	486	571	571
d_b, Bicycle Delay [s]	17.86	20.06	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	1.709	1.687	2.017	1.819
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.541

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	848	273	12	1030	85	121	156	94	197	156	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	55	0	0	27	0	0	45	0	0	14
Total Hourly Volume [veh/h]	88	848	218	12	1030	58	121	156	49	197	156	9
Peak Hour Factor	0.8400	0.8400	0.8400	0.9570	0.9570	0.9570	0.7450	0.7450	0.7450	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	252	65	3	269	15	41	52	16	54	42	2
Total Analysis Volume [veh/h]	105	1010	260	13	1076	61	162	209	66	215	170	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	28	0	11	27	0	16	30	0	16	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	48	48	2	43	43	10	7	7	12	10	10
g / C, Green / Cycle	0.08	0.56	0.56	0.02	0.51	0.51	0.11	0.09	0.09	0.14	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.16	0.01	0.30	0.04	0.09	0.06	0.04	0.12	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	137	1992	889	42	1801	804	200	313	140	252	417	186
d1, Uniform Delay [s]	38.58	11.55	9.89	40.94	14.90	10.82	36.92	37.65	36.97	35.70	34.87	33.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.68	0.93	0.83	4.22	1.47	0.18	7.57	2.45	2.46	7.97	0.64	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.51	0.29	0.31	0.60	0.08	0.81	0.67	0.47	0.85	0.41	0.05
d, Delay for Lane Group [s/veh]	47.26	12.47	10.72	45.15	16.38	11.00	44.49	40.10	39.44	43.67	35.51	33.54
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.44	5.54	2.54	0.31	7.12	0.60	3.65	2.18	1.38	4.82	1.64	0.19
50th-Percentile Queue Length [ft/ln]	61.12	138.51	63.40	7.84	178.09	14.92	91.23	54.54	34.57	120.43	41.08	4.68
95th-Percentile Queue Length [veh/ln]	4.40	9.40	4.56	0.56	11.50	1.07	6.57	3.93	2.49	8.42	2.96	0.34
95th-Percentile Queue Length [ft/ln]	110.01	235.01	114.12	14.10	287.52	26.86	164.21	98.17	62.22	210.41	73.95	8.42

Movement, Approach, & Intersection Results

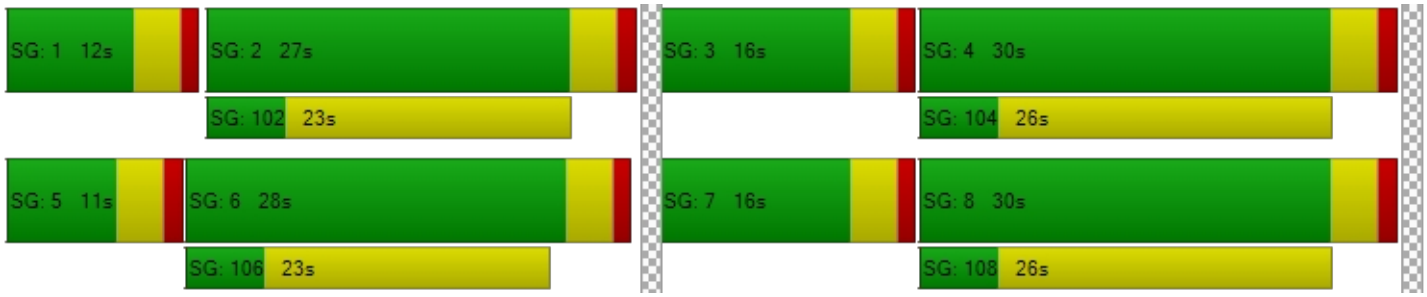
d_M, Delay for Movement [s/veh]	47.26	12.47	10.72	45.15	16.38	11.00	44.49	40.10	39.44	43.67	35.51	33.54
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	14.80			16.42			41.63			39.90		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	21.80											
Intersection LOS	C											
Intersection V/C	0.541											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.990	2.876	2.653	2.625
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	541	612	612
d_b, Bicycle Delay [s]	21.89	22.61	20.48	20.48
l_b,int, Bicycle LOS Score for Intersection	2.739	2.531	1.957	1.897
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.462

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	0	60	954	3	0	50	914	163	122	50	52	9	56	46
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	23	0	0	19	0	0	28
Total Hourly Volume [veh/h]	0	60	954	3	0	50	914	140	122	50	33	9	56	18
Peak Hour Factor	0.89	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.7900	0.7900	0.7900	0.7330	0.7330	0.7330
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	17	266	1	0	14	264	41	39	16	10	3	19	6
Total Analysis Volume [veh/h]	0	67	1064	3	0	58	1058	162	154	63	42	12	76	25
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	11	21	0	0	11	21	0	13	32	0	11	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	40	40	5	39	39	8	13	13	2	6	6
g / C, Green / Cycle	0.07	0.53	0.53	0.07	0.53	0.53	0.11	0.17	0.17	0.02	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.04	0.30	0.00	0.03	0.30	0.10	0.09	0.03	0.03	0.01	0.04	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	128	1879	839	120	1863	832	194	318	270	40	156	132
d1, Uniform Delay [s]	33.67	11.96	8.40	33.83	12.17	9.52	32.70	26.83	26.63	36.19	32.95	32.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.28	1.24	0.01	3.01	1.26	0.52	7.18	0.30	0.27	4.12	2.35	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.57	0.00	0.48	0.57	0.19	0.79	0.20	0.16	0.30	0.49	0.19
d, Delay for Lane Group [s/veh]	36.94	13.20	8.41	36.84	13.43	10.05	39.88	27.14	26.90	40.31	35.30	32.80
Lane Group LOS	D	B	A	D	B	B	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.27	5.58	0.02	1.10	5.61	1.39	3.04	0.97	0.64	0.26	1.39	0.44
50th-Percentile Queue Length [ft/ln]	31.63	139.46	0.57	27.38	140.32	34.69	75.95	24.23	16.09	6.44	34.74	10.95
95th-Percentile Queue Length [veh/ln]	2.28	9.45	0.04	1.97	9.50	2.50	5.47	1.74	1.16	0.46	2.50	0.79
95th-Percentile Queue Length [ft/ln]	56.93	236.30	1.02	49.28	237.46	62.45	136.72	43.61	28.95	11.59	62.53	19.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.9	36.9	13.2	8.41	36.8	36.8	13.4	10.0	39.88	27.14	26.90	40.31	35.30	32.80
Movement LOS	D	D	B	A	D	D	B	B	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	14.59				14.07				34.67			35.28		
Approach LOS	B				B				C			D		
d_I, Intersection Delay [s/veh]	17.06													
Intersection LOS	B													
Intersection V/C	0.462													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.813	2.896	2.298	2.228
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	453	453	747	693
d_b, Bicycle Delay [s]	22.43	22.43	14.73	16.01
l_b,int, Bicycle LOS Score for Intersection	2.440	2.585	2.018	1.792
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	55.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.055

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	1103	1	0	0	902	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1103	1	0	0	902	1	0
Peak Hour Factor	0.8710	0.8710	0.8770	0.8770	0.8770	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	317	0	0	0	257	1	0
Total Analysis Volume [veh/h]	1266	1	0	0	1029	4	0
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.05	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	26.75	11.61	0.00	55.49	14.89
Movement LOS	A	A	D	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	2.08	2.08
d_A, Approach Delay [s/veh]	0.00		0.00			55.49	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	0.10						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	27.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.524

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	168	863	148	0	97	710	89	132	425	127	0	20	257	78
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	101	0	0	0	38	0	0	77	0	0	0	49
Total Hourly Volume [veh/h]	0	168	863	47	0	97	710	51	132	425	50	0	20	257	29
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.9770	0.9770	0.9770	0.91	0.91	0.91	0.91
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	48	245	13	0	28	204	15	34	109	13	0	5	70	8
Total Analysis Volume [veh/h]	0	191	982	53	0	111	815	59	135	435	51	0	22	280	32
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	18	27	0	0	21	30	0	11	36	0	0	11	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	48	48	7	44	44	7	18	18	5	5	16	16
g / C, Green / Cycle	0.13	0.51	0.51	0.08	0.46	0.46	0.07	0.19	0.19	0.05	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.11	0.28	0.03	0.06	0.16	0.04	0.04	0.12	0.03	0.01	0.01	0.15	0.02
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	227	1809	821	144	2345	732	251	696	306	94	94	327	278
d1, Uniform Delay [s]	40.60	15.90	11.90	42.96	16.50	14.39	42.59	35.26	32.05	43.3	43.3	38.2	33.2
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.26	1.17	0.15	8.50	0.41	0.22	1.79	0.92	0.25	1.26	1.26	6.50	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.54	0.06	0.77	0.35	0.08	0.54	0.62	0.17	0.23	0.23	0.86	0.12
d, Delay for Lane Group [s/veh]	48.86	17.07	12.06	51.46	16.91	14.61	44.39	36.19	32.31	44.5	44.5	44.7	33.4
Lane Group LOS	D	B	B	D	B	B	D	D	C	D	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.84	7.12	0.59	2.87	3.76	0.74	1.58	4.65	0.99	0.53	0.53	6.83	0.63
50th-Percentile Queue Length [ft/ln]	120.94	178.11	14.66	71.87	93.88	18.46	39.53	116.27	24.84	13.1	13.1	170.	15.8
95th-Percentile Queue Length [veh/ln]	8.44	11.50	1.06	5.17	6.76	1.33	2.85	8.19	1.79	0.95	0.95	11.1	1.14
95th-Percentile Queue Length [ft/ln]	211.12	287.55	26.39	129.37	168.98	33.23	71.16	204.69	44.72	23.7	23.7	277.	28.5

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.8	48.8	17.0	12.0	51.4	51.4	16.9	14.6	44.39	36.19	32.31	44.5	44.5	44.7	33.4
Movement LOS	D	D	B	B	D	D	B	B	D	D	C	D	D	D	C
d_A, Approach Delay [s/veh]	21.81				20.66				37.65			43.73			
Approach LOS	C				C				D			D			
d_I, Intersection Delay [s/veh]	26.99														
Intersection LOS	C														
Intersection V/C	0.524														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	3.061	3.054	2.884	2.703
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	484	547	674	674
d_b, Bicycle Delay [s]	27.28	25.06	20.89	20.89
l_b,int, Bicycle LOS Score for Intersection	2.654	2.061	2.135	2.155
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.621

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	584	38	63	825	51	28	33	19	42	37	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	21	0	0	8	0	0	12
Total Hourly Volume [veh/h]	14	584	33	63	825	30	28	33	11	42	37	38
Peak Hour Factor	0.8900	0.8900	0.8900	0.9510	0.9510	0.9510	0.8390	0.8390	0.8390	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	164	9	17	217	8	8	10	3	12	11	11
Total Analysis Volume [veh/h]	16	656	37	66	868	32	33	39	13	50	44	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	15	0	11	15	0	0	51	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	58	58	6	61	6	9
g / C, Green / Cycle	0.03	0.61	0.61	0.06	0.64	0.07	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.35	0.02	0.04	0.48	0.05	0.08
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1858	1787	1739
c, Capacity [veh/h]	48	1129	960	110	1188	120	172
d1, Uniform Delay [s]	45.48	11.50	7.64	43.48	12.02	43.49	41.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.09	2.18	0.08	5.11	4.55	7.55	8.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.58	0.04	0.60	0.76	0.71	0.81
d, Delay for Lane Group [s/veh]	49.57	13.68	7.72	48.60	16.57	51.04	50.53
Lane Group LOS	D	B	A	D	B	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.42	8.30	0.31	1.66	13.03	2.19	3.57
50th-Percentile Queue Length [ft/ln]	10.57	207.55	7.64	41.45	325.74	54.85	89.27
95th-Percentile Queue Length [veh/ln]	0.76	13.03	0.55	2.98	18.95	3.95	6.43
95th-Percentile Queue Length [ft/ln]	19.02	325.69	13.75	74.61	473.73	98.73	160.68

Movement, Approach, & Intersection Results

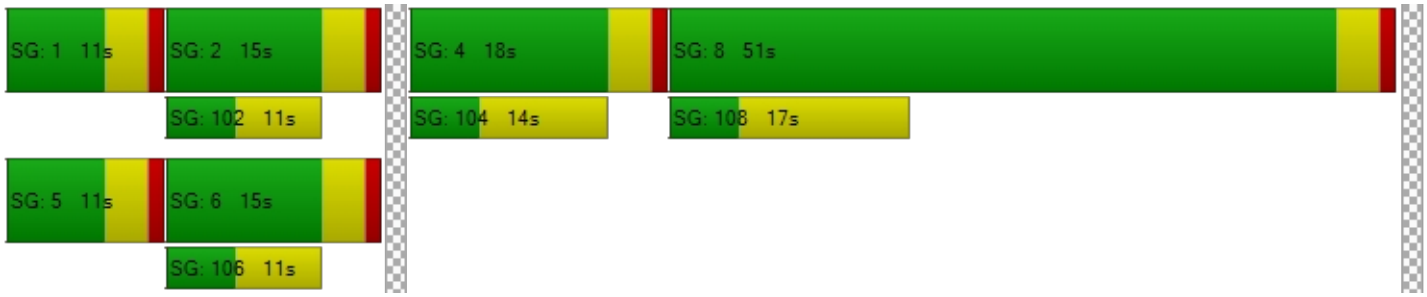
d_M, Delay for Movement [s/veh]	49.57	13.68	7.72	48.60	16.57	16.57	51.04	51.04	51.04	50.53	50.53	50.53
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.18			18.75			51.04			50.53		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.82											
Intersection LOS	C											
Intersection V/C	0.621											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	2.545	2.537	1.831	1.881
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	232	232	989	295
d_b, Bicycle Delay [s]	37.14	37.14	12.13	34.53
l_b,int, Bicycle LOS Score for Intersection	2.738	3.188	1.713	1.809
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	45.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.784

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	515	51	16	684	122	113	262	85	88	140	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	27	0	0	33	0	0	9
Total Hourly Volume [veh/h]	79	515	34	16	684	95	113	262	52	88	140	21
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	10	4	192	27	32	74	15	29	46	7
Total Analysis Volume [veh/h]	97	631	42	18	767	107	127	295	59	116	185	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	63	0	11	63	0	17	29	0	12	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	60	3	56	10	28	8	26
g / C, Green / Cycle	0.06	0.52	0.03	0.49	0.09	0.25	0.07	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.36	0.01	0.47	0.07	0.19	0.07	0.12
s, saturation flow rate [veh/h]	1781	1879	1810	1860	1810	1817	1781	1828
c, Capacity [veh/h]	108	975	48	901	155	447	124	420
d1, Uniform Delay [s]	53.63	20.75	55.02	28.82	51.72	40.62	53.25	38.60
k, delay calibration	0.11	0.21	0.11	0.41	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.06	1.73	4.72	20.83	10.22	13.46	24.71	4.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.69	0.37	0.97	0.82	0.79	0.94	0.51
d, Delay for Lane Group [s/veh]	74.69	22.48	59.75	49.65	61.94	54.08	77.95	42.91
Lane Group LOS	E	C	E	D	E	D	E	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.42	13.54	0.58	27.58	4.04	11.00	4.18	5.74
50th-Percentile Queue Length [ft/ln]	85.40	338.59	14.40	689.45	100.89	275.06	104.52	143.60
95th-Percentile Queue Length [veh/ln]	6.15	19.58	1.04	36.19	7.26	16.44	7.53	9.67
95th-Percentile Queue Length [ft/ln]	153.72	489.48	25.93	904.76	181.60	411.05	188.13	241.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.69	22.48	22.48	59.75	49.65	49.65	61.94	54.08	54.08	77.95	42.91	42.91
Movement LOS	E	C	C	E	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	29.06			49.85			56.16			55.27		
Approach LOS	C			D			E			E		
d_I, Intersection Delay [s/veh]	45.32											
Intersection LOS	D											
Intersection V/C	0.784											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.85	48.85	48.85	48.85
l_p,int, Pedestrian LOS Score for Intersection	2.550	2.686	2.303	2.197
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1026	1026	435	348
d_b, Bicycle Delay [s]	13.63	13.63	35.22	39.24
l_b,int, Bicycle LOS Score for Intersection	2.858	3.076	2.408	2.117
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1103	0	0	902	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1103	0	0	902	0	0
Peak Hour Factor	0.8710	1.0000	1.0000	0.8770	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	317	0	0	257	0	0
Total Analysis Volume [veh/h]	1266	0	0	1029	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	13.52
Movement LOS	A			A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		13.52	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	1	1	0
Peak Hour Factor	0.9000	0.9000	0.2500	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	1	0
Total Analysis Volume [veh/h]	0	0	0	4	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	8.33	7.23	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.44		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	1098	18	13	919	123	119	3	46	12	6	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	38	0	0	19	0	0	3
Total Hourly Volume [veh/h]	51	1098	13	13	919	85	119	3	27	12	6	5
Peak Hour Factor	0.8880	0.8880	0.8880	0.8840	0.8840	0.8840	0.8550	0.8550	0.8550	0.5750	0.5750	0.5750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	309	4	4	260	24	35	1	8	5	3	2
Total Analysis Volume [veh/h]	57	1236	15	15	1040	96	139	4	32	21	10	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	43	0	15	40	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	57	57	2	53	53	14	14	14	14
g / C, Green / Cycle	0.06	0.67	0.67	0.02	0.63	0.63	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.39	0.01	0.01	0.32	0.07	0.11	0.02	0.02	0.01
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1254	1455	1235	1553
c, Capacity [veh/h]	98	2134	953	40	2017	901	249	244	233	261
d1, Uniform Delay [s]	38.84	7.72	4.79	40.80	8.63	6.25	36.07	30.17	33.45	29.79
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.34	1.15	0.03	5.74	0.95	0.24	1.94	0.27	0.16	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.58	0.02	0.38	0.52	0.11	0.56	0.15	0.09	0.07
d, Delay for Lane Group [s/veh]	44.18	8.88	4.83	46.54	9.58	6.49	38.01	30.44	33.61	29.90
Lane Group LOS	D	A	A	D	A	A	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.29	5.38	0.08	0.37	4.78	0.66	2.89	0.64	0.39	0.33
50th-Percentile Queue Length [ft/ln]	32.14	134.59	2.10	9.22	119.58	16.59	72.21	15.92	9.81	8.27
95th-Percentile Queue Length [veh/ln]	2.31	9.19	0.15	0.66	8.37	1.19	5.20	1.15	0.71	0.60
95th-Percentile Queue Length [ft/ln]	57.84	229.72	3.78	16.59	209.25	29.86	129.99	28.66	17.66	14.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.18	8.88	4.83	46.54	9.58	6.49	38.01	30.44	30.44	33.61	29.90	29.90
Movement LOS	D	A	A	D	A	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.37			9.80			36.46			31.85		
Approach LOS	B			A			D			C		
d_I, Intersection Delay [s/veh]	12.15											
Intersection LOS	B											
Intersection V/C	0.506											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.883	3.122	2.094	1.970
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	918	847	541	541
d_b, Bicycle Delay [s]	12.45	14.12	22.61	22.61
l_b,int, Bicycle LOS Score for Intersection	2.643	2.541	1.880	1.631
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Moreno Valley Elementary School

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Scenario 11 CU+P AM
5/26/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.503	25.0	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.538	27.1	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	NB Left	0.759	37.8	D
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	WB Left	0.692	27.6	C
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.351	442.3	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	SB Left	0.644	33.7	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	WB Thru	0.709	33.4	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	WB Thru	0.722	43.1	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	WB Right	0.628	22.9	C
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	EB Left	0.320	8.3	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.774	30.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	98	346	88	59	280	75	30	207	65	73	321	76
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	27	0	0	32	0	0	21	0	0	9
Total Hourly Volume [veh/h]	98	346	61	59	280	43	30	207	44	73	321	67
Peak Hour Factor	0.8230	0.8230	0.8230	0.8070	0.8070	0.8070	0.7500	0.7500	0.7500	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	105	19	18	87	13	10	69	15	23	103	21
Total Analysis Volume [veh/h]	119	420	74	73	347	53	40	276	59	94	412	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	25	0	11	23	0	11	23	0	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	28	28	5	27	27	4	15	6	17	17
g / C, Green / Cycle	0.09	0.40	0.40	0.08	0.38	0.38	0.06	0.21	0.08	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.07	0.22	0.05	0.04	0.19	0.03	0.02	0.18	0.05	0.14	0.14
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1814	1781	1870	1760
c, Capacity [veh/h]	163	740	629	138	713	606	100	387	153	454	427
d1, Uniform Delay [s]	31.05	16.56	13.47	31.16	16.51	13.91	32.01	26.66	31.01	23.32	23.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.06	3.15	0.38	3.09	2.37	0.28	2.56	5.89	4.00	1.09	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.57	0.12	0.53	0.49	0.09	0.40	0.87	0.62	0.56	0.57
d, Delay for Lane Group [s/veh]	37.11	19.71	13.85	34.25	18.87	14.19	34.57	32.54	35.01	24.42	24.54
Lane Group LOS	D	B	B	C	B	B	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.17	5.45	0.75	1.27	4.36	0.55	0.71	5.75	1.65	3.65	3.48
50th-Percentile Queue Length [ft/ln]	54.14	136.20	18.86	31.70	109.08	13.72	17.66	143.63	41.31	91.20	86.98
95th-Percentile Queue Length [veh/ln]	3.90	9.28	1.36	2.28	7.79	0.99	1.27	9.68	2.97	6.57	6.26
95th-Percentile Queue Length [ft/ln]	97.46	231.89	33.96	57.07	194.72	24.70	31.79	241.91	74.37	164.16	156.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.11	19.71	13.85	34.25	18.87	14.19	34.57	32.54	32.54	35.01	24.46	24.54
Movement LOS	D	B	B	C	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	22.38			20.72			32.76			26.15		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.98											
Intersection LOS	C											
Intersection V/C	0.503											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.441	2.424	2.396	2.389
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	543	543	543
d_b, Bicycle Delay [s]	17.15	18.58	18.58	18.58
l_b,int, Bicycle LOS Score for Intersection	2.616	2.393	2.213	2.055
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.538

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	224	114	93	167	80	78	305	12	79	325	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	15	0	0	20	0	0	4	0	0	27
Total Hourly Volume [veh/h]	31	224	99	93	167	60	78	305	8	79	325	106
Peak Hour Factor	0.6600	0.6600	0.6600	0.8380	0.8380	0.8380	0.6310	0.6310	0.6310	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	85	38	28	50	18	31	121	3	31	129	42
Total Analysis Volume [veh/h]	47	339	150	111	199	72	124	483	13	125	516	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	27	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	21	21	6	23	23	6	21	6	21	21
g / C, Green / Cycle	0.06	0.30	0.30	0.09	0.33	0.33	0.09	0.29	0.09	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.14	0.14	0.06	0.07	0.08	0.07	0.27	0.07	0.19	0.19
s, saturation flow rate [veh/h]	1781	1870	1680	1781	1870	1705	1781	1861	1781	1870	1715
c, Capacity [veh/h]	109	558	501	159	611	557	164	544	164	547	501
d1, Uniform Delay [s]	31.75	19.99	20.06	31.02	17.19	17.23	31.08	23.95	31.09	21.70	21.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.17	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.70	2.69	3.11	5.43	0.87	1.00	6.96	9.59	7.14	1.32	1.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.46	0.47	0.70	0.23	0.24	0.76	0.91	0.76	0.65	0.65
d, Delay for Lane Group [s/veh]	34.45	22.68	23.16	36.45	18.06	18.23	38.03	33.54	38.23	23.02	23.16
Lane Group LOS	C	C	C	D	B	B	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.82	3.60	3.36	2.00	1.69	1.61	2.29	8.81	2.31	4.99	4.61
50th-Percentile Queue Length [ft/ln]	20.62	89.95	84.00	49.94	42.21	40.25	57.22	220.15	57.85	124.76	115.18
95th-Percentile Queue Length [veh/ln]	1.48	6.48	6.05	3.60	3.04	2.90	4.12	13.67	4.17	8.65	8.13
95th-Percentile Queue Length [ft/ln]	37.12	161.92	151.19	89.90	75.97	72.46	102.99	341.82	104.13	216.36	203.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.45	22.80	23.16	36.45	18.11	18.23	38.03	33.54	33.54	38.23	23.06	23.16
Movement LOS	C	C	C	D	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	23.93			23.46			34.44			25.42		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	27.14											
Intersection LOS	C											
Intersection V/C	0.538											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
I_p,int, Pedestrian LOS Score for Intersection	2.484	2.524	2.437	2.547
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	657	571
d_b, Bicycle Delay [s]	20.06	20.06	15.78	17.86
I_b,int, Bicycle LOS Score for Intersection	2.014	1.891	2.589	2.249
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	37.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.759

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	97	812	176	10	1231	95	224	207	269	154	138	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	35	0	0	30	0	0	129	0	0	19
Total Hourly Volume [veh/h]	97	812	141	10	1231	65	224	207	140	154	138	12
Peak Hour Factor	0.8440	0.8440	0.8440	0.7930	0.7930	0.7930	0.6080	0.6080	0.6080	0.7620	0.7620	0.7620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	241	42	3	388	20	92	85	58	51	45	4
Total Analysis Volume [veh/h]	115	962	167	13	1552	82	368	340	230	202	181	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	41	0	11	27	0	38	43	0	25	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	66	66	3	59	59	27	20	20	16	9	9
g / C, Green / Cycle	0.08	0.55	0.55	0.02	0.49	0.49	0.22	0.17	0.17	0.13	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.06	0.27	0.11	0.01	0.44	0.05	0.21	0.10	0.14	0.11	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	143	1945	868	38	1736	775	399	601	268	232	266	119
d1, Uniform Delay [s]	54.28	16.93	13.81	57.91	27.95	16.62	45.55	45.85	48.48	51.24	54.14	51.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.26	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.03	0.90	0.49	5.16	7.56	0.27	18.04	0.84	7.74	9.78	3.03	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.49	0.19	0.34	0.89	0.11	0.92	0.57	0.86	0.87	0.68	0.13
d, Delay for Lane Group [s/veh]	64.32	17.83	14.30	63.06	35.51	16.90	63.59	46.68	56.23	61.02	57.17	52.42
Lane Group LOS	E	B	B	E	D	B	E	D	E	E	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.82	8.29	2.40	0.44	21.33	1.29	12.66	4.74	7.26	6.58	2.78	0.47
50th-Percentile Queue Length [ft/ln]	95.38	207.35	59.95	11.11	533.30	32.13	316.59	118.43	181.38	164.56	69.48	11.72
95th-Percentile Queue Length [veh/ln]	6.87	13.02	4.32	0.80	28.91	2.31	18.50	8.31	11.67	10.79	5.00	0.84
95th-Percentile Queue Length [ft/ln]	171.68	325.43	107.92	20.00	722.66	57.84	462.50	207.67	291.82	269.75	125.06	21.10

Movement, Approach, & Intersection Results

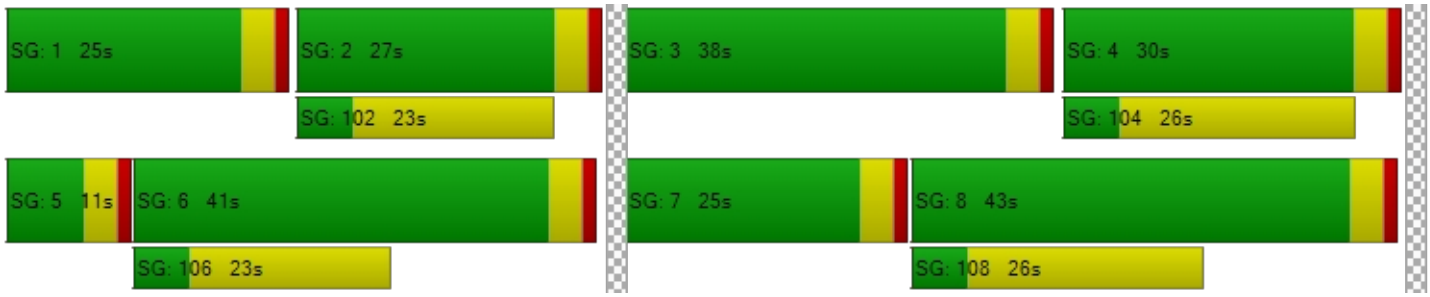
d_M, Delay for Movement [s/veh]	64.32	17.83	14.30	63.06	35.51	16.90	63.59	46.68	56.23	61.02	57.17	52.42
Movement LOS	E	B	B	E	D	B	E	D	E	E	E	D
d_A, Approach Delay [s/veh]	21.65			34.80			55.66			58.93		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	37.84											
Intersection LOS	D											
Intersection V/C	0.759											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersection	3.069	3.005	2.891	2.653
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	617	383	650	433
d_b, Bicycle Delay [s]	28.70	39.20	27.34	36.82
l_b,int, Bicycle LOS Score for Intersection	2.615	2.943	2.440	1.904
Bicycle LOS	B	C	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.692

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	59	145	876	63	0	42	1150	155	127	65	174	76	68	114
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	22	0	0	63	0	0	70
Total Hourly Volume [veh/h]	59	145	876	63	0	42	1150	133	127	65	111	76	68	44
Peak Hour Factor	0.82	0.82	0.82	0.82	0.80	0.80	0.80	0.80	0.7840	0.7840	0.7840	0.6980	0.6980	0.6980
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	44	266	19	0	13	358	41	40	21	35	27	24	16
Total Analysis Volume [veh/h]	72	176	1063	76	0	52	1432	166	162	83	142	109	97	63
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	20	30	0	0	11	21	0	29	30	0	29	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	60	60	5	49	49	11	11	11	8	8	8
g / C, Green / Cycle	0.16	0.59	0.59	0.05	0.49	0.49	0.11	0.11	0.11	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.14	0.30	0.05	0.03	0.40	0.10	0.09	0.04	0.09	0.06	0.05	0.04
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	280	2113	943	97	1747	780	199	212	180	141	151	128
d1, Uniform Delay [s]	41.30	11.80	8.69	46.10	21.73	14.50	43.49	41.20	43.24	45.24	44.63	44.06
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.07	0.86	0.17	4.50	4.44	0.62	7.93	1.18	7.49	8.77	4.51	2.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.50	0.08	0.53	0.82	0.21	0.82	0.39	0.79	0.78	0.64	0.49
d, Delay for Lane Group [s/veh]	50.37	12.66	8.86	50.60	26.17	15.13	51.42	42.38	50.73	54.02	49.14	46.95
Lane Group LOS	D	B	A	D	C	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.63	6.60	0.71	1.38	14.54	2.22	4.33	1.96	3.77	2.98	2.51	1.59
50th-Percentile Queue Length [ft/ln]	165.67	165.03	17.82	34.39	363.51	55.46	108.18	49.02	94.26	74.55	62.74	39.77
95th-Percentile Queue Length [veh/ln]	10.85	10.82	1.28	2.48	20.79	3.99	7.74	3.53	6.79	5.37	4.52	2.86
95th-Percentile Queue Length [ft/ln]	271.22	270.38	32.07	61.90	519.85	99.83	193.47	88.24	169.67	134.19	112.93	71.59

Movement, Approach, & Intersection Results

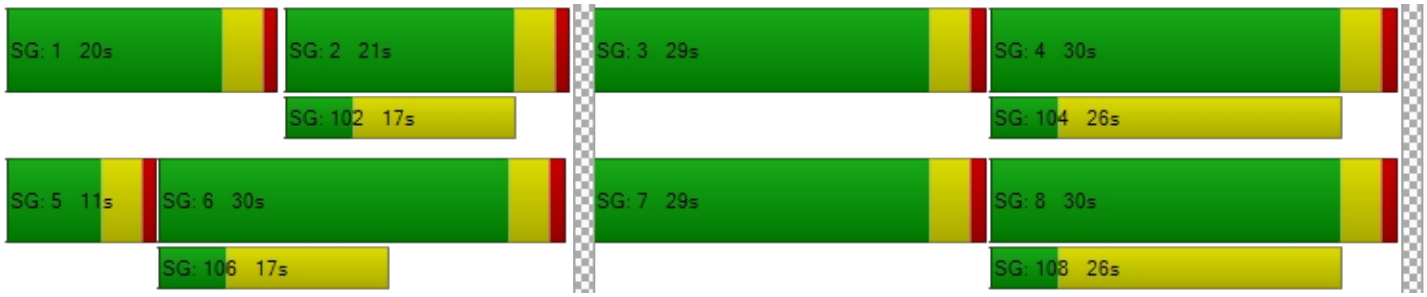
d_M, Delay for Movement [s/veh]	50.3	50.3	12.6	8.86	50.6	50.6	26.1	15.1	51.42	42.38	50.73	54.02	49.14	46.95
Movement LOS	D	D	B	A	D	D	C	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	19.19				25.83				49.23			50.60		
Approach LOS	B				C				D			D		
d_I, Intersection Delay [s/veh]	27.59													
Intersection LOS	C													
Intersection V/C	0.692													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	2.969	2.983	2.449	2.371
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	520	340	520	520
d_b, Bicycle Delay [s]	27.38	34.45	27.38	27.38
l_b,int, Bicycle LOS Score for Intersection	2.559	2.896	2.302	2.119
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	442.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.351

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	890	35	52	225	1178	2	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	890	35	52	225	1178	2	2
Peak Hour Factor	0.8650	0.8650	0.8200	0.8200	0.8200	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	257	10	16	69	359	1	1
Total Analysis Volume [veh/h]	1029	40	63	274	1437	4	4
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.26	0.42	0.01	0.35	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	34.78	25.21	0.00	442.34	12.18
Movement LOS	A	A	D	D	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	5.20	5.20	0.00	0.44	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	129.91	129.91	0.00	10.89	0.60
d_A, Approach Delay [s/veh]	0.00		5.13			227.26	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	3.83						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	33.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.644

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	109	634	43	0	100	935	138	102	252	196	0	126	442	180
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	29	0	0	0	59	0	0	120	0	0	0	113
Total Hourly Volume [veh/h]	0	109	634	14	0	100	935	79	102	252	76	0	126	442	67
Peak Hour Factor	0.87	0.87	0.87	0.87	0.75	0.75	0.75	0.75	0.7940	0.7940	0.7940	0.78	0.78	0.78	0.78
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	31	182	4	0	33	308	26	32	79	24	0	40	140	21
Total Analysis Volume [veh/h]	0	125	728	16	0	132	1232	104	128	317	96	0	160	560	85
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street [	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street [	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	13	32	0	0	11	30	0	11	33	0	0	14	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	32	32	7	31	31	7	25	25	10	10	29	29
g / C, Green / Cycle	0.09	0.35	0.35	0.08	0.34	0.34	0.07	0.28	0.28	0.11	0.11	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.01	0.07	0.24	0.07	0.04	0.09	0.06	0.09	0.09	0.29	0.05
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	157	1256	570	142	1748	545	260	1020	448	198	198	601	511
d1, Uniform Delay [s]	40.29	23.71	19.05	41.29	25.64	20.80	40.01	25.46	24.72	39.1	39.1	29.8	22.2
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.33	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.91	1.95	0.09	22.07	2.42	0.78	1.44	0.17	0.24	7.60	7.60	17.1	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.58	0.03	0.93	0.70	0.19	0.49	0.31	0.21	0.81	0.81	0.93	0.17
d, Delay for Lane Group [s/veh]	49.20	25.66	19.14	63.35	28.06	21.58	41.46	25.63	24.96	46.7	46.7	47.0	22.3
Lane Group LOS	D	C	B	E	C	C	D	C	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.07	6.43	0.23	3.74	7.73	1.63	1.40	2.64	1.57	3.82	3.82	14.1	1.30
50th-Percentile Queue Length [ft/ln]	76.69	160.76	5.74	93.51	193.28	40.64	34.96	66.02	39.21	95.5	95.5	353.	32.4
95th-Percentile Queue Length [veh/ln]	5.52	10.59	0.41	6.73	12.29	2.93	2.52	4.75	2.82	6.88	6.88	20.3	2.33
95th-Percentile Queue Length [ft/ln]	138.05	264.73	10.33	168.32	307.28	73.15	62.92	118.84	70.57	172.	172.	507.	58.3

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.2	49.2	25.6	19.1	63.3	63.3	28.0	21.5	41.46	25.63	24.96	46.7	46.7	47.0	22.3
Movement LOS	D	D	C	B	E	E	C	C	D	C	C	D	D	D	C
d_A, Approach Delay [s/veh]	28.93				30.77				29.26			44.76			
Approach LOS	C				C				C			D			
d_I, Intersection Delay [s/veh]	33.65														
Intersection LOS	C														
Intersection V/C	0.644														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.986	3.125	2.976	2.845
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	578	644	711
d_b, Bicycle Delay [s]	21.36	22.76	20.67	18.69
l_b,int, Bicycle LOS Score for Intersection	2.300	2.327	2.105	2.810
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.709

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	15	648	39	26	466	54	50	65	25	48	102	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	23	0	0	10	0	0	12
Total Hourly Volume [veh/h]	15	648	34	26	466	31	50	65	15	48	102	38
Peak Hour Factor	0.8040	0.8040	0.8040	0.8530	0.8530	0.8530	0.7630	0.7630	0.7630	0.6340	0.6340	0.6340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	201	11	8	137	9	16	21	5	19	40	15
Total Analysis Volume [veh/h]	19	806	42	30	546	36	66	85	20	76	161	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	15	0	11	15	0	0	40	0	0	19	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	40	40	4	41	10	15
g / C, Green / Cycle	0.03	0.47	0.47	0.04	0.49	0.12	0.18
(v / s)_i Volume / Saturation Flow Rate	0.01	0.43	0.03	0.02	0.31	0.10	0.17
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1850	1798	1784
c, Capacity [veh/h]	56	883	751	77	896	215	315
d1, Uniform Delay [s]	40.40	20.84	12.18	39.65	16.52	36.48	34.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.55	15.30	0.14	3.16	3.64	6.52	13.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.91	0.06	0.39	0.65	0.79	0.94
d, Delay for Lane Group [s/veh]	43.96	36.15	12.32	42.81	20.16	42.99	47.94
Lane Group LOS	D	D	B	D	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.44	17.29	0.44	0.67	8.78	3.78	7.07
50th-Percentile Queue Length [ft/ln]	11.00	432.31	11.05	16.76	219.49	94.49	176.81
95th-Percentile Queue Length [veh/ln]	0.79	24.11	0.80	1.21	13.64	6.80	11.43
95th-Percentile Queue Length [ft/ln]	19.79	602.81	19.89	30.17	340.98	170.09	285.85

Movement, Approach, & Intersection Results

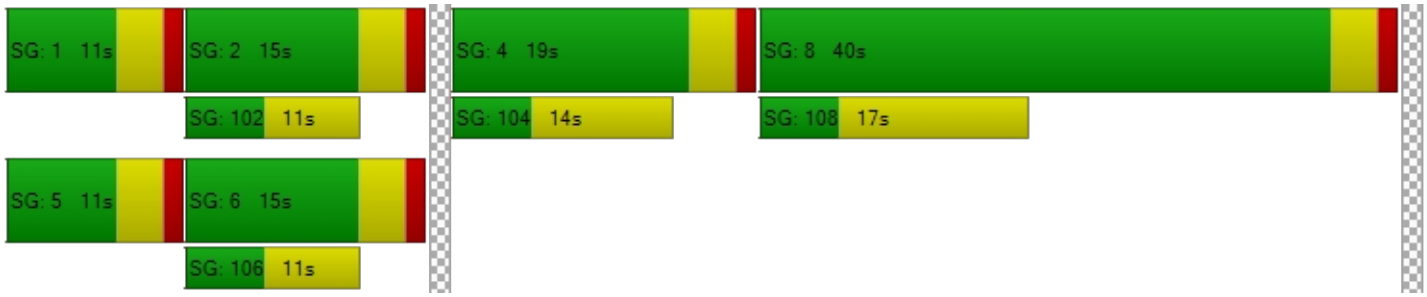
d_M, Delay for Movement [s/veh]	43.96	36.15	12.32	42.81	20.16	20.16	42.99	42.99	42.99	47.94	47.94	47.94
Movement LOS	D	D	B	D	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	35.16			21.27			42.99			47.94		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	33.43											
Intersection LOS	C											
Intersection V/C	0.709											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.508	2.485	1.933	1.960
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	259	259	847	353
d_b, Bicycle Delay [s]	32.21	32.21	14.12	28.82
l_b,int, Bicycle LOS Score for Intersection	2.998	2.607	1.858	2.069
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	149	590	36	29	443	133	82	135	75	85	312	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	29	0	0	29	0	0	7
Total Hourly Volume [veh/h]	149	590	24	29	443	104	82	135	46	85	312	17
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	181	7	8	124	29	23	38	13	28	103	6
Total Analysis Volume [veh/h]	183	723	29	33	497	117	92	152	52	112	412	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	39	0	11	35	0	11	19	0	16	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	37	4	30	6	22	7	22
g / C, Green / Cycle	0.12	0.43	0.04	0.35	0.07	0.26	0.08	0.26
(v / s)_i Volume / Saturation Flow Rate	0.10	0.40	0.02	0.33	0.05	0.11	0.06	0.23
s, saturation flow rate [veh/h]	1781	1887	1810	1838	1810	1789	1781	1853
c, Capacity [veh/h]	219	812	81	648	133	458	143	488
d1, Uniform Delay [s]	36.45	22.94	39.50	26.78	38.48	26.56	38.37	30.14
k, delay calibration	0.11	0.38	0.11	0.38	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.13	14.58	3.22	20.55	6.35	3.11	8.90	20.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.93	0.41	0.95	0.69	0.45	0.78	0.89
d, Delay for Lane Group [s/veh]	44.58	37.53	42.72	47.33	44.82	29.68	47.26	51.05
Lane Group LOS	D	D	D	D	D	C	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.13	16.49	0.73	15.13	2.08	3.78	2.61	11.06
50th-Percentile Queue Length [ft/ln]	103.30	412.18	18.35	378.20	51.90	94.47	65.14	276.59
95th-Percentile Queue Length [veh/ln]	7.44	23.15	1.32	21.51	3.74	6.80	4.69	16.52
95th-Percentile Queue Length [ft/ln]	185.93	578.66	33.04	537.67	93.42	170.05	117.25	412.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.58	37.53	37.53	42.72	47.33	47.33	44.82	29.68	29.68	47.26	51.05	51.05
Movement LOS	D	D	D	D	D	D	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	38.91			47.10			34.38			50.27		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	43.10											
Intersection LOS	D											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.488	2.636	2.327	2.202
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	824	729	353	471
d_b, Bicycle Delay [s]	14.71	17.15	28.82	24.85
l_b,int, Bicycle LOS Score for Intersection	3.122	2.675	2.096	2.472
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	22.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.628

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	858	0	0	1454	0	293
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	858	0	0	1454	0	293
Peak Hour Factor	0.8650	1.0000	1.0000	0.8200	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	248	0	0	443	0	81
Total Analysis Volume [veh/h]	992	0	0	1773	0	326
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.63
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	22.90
Movement LOS	A			A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	4.30
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	107.38
d_A, Approach Delay [s/veh]	0.00		0.00		22.90	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.42					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.320

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	258	2	4	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	258	2	4	0
Peak Hour Factor	0.9000	0.9000	0.5000	0.5000	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	129	1	2	0
Total Analysis Volume [veh/h]	0	0	516	4	8	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.32	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	25.89	8.35	8.28	0.00	0.00	0.00
Movement LOS	D	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.40	1.40	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	34.95	34.95	0.00	0.00
d_A, Approach Delay [s/veh]	17.12		8.22		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.09					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.774

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	252	1043	12	11	1213	257	143	10	123	31	25	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	80	0	0	52	0	0	4
Total Hourly Volume [veh/h]	252	1043	8	11	1213	177	143	10	71	31	25	6
Peak Hour Factor	0.7880	0.7880	0.7880	0.8820	0.8820	0.8820	0.8150	0.8150	0.8150	0.5180	0.5180	0.5180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	331	3	3	344	50	44	3	22	15	12	3
Total Analysis Volume [veh/h]	320	1324	10	12	1375	201	175	12	87	60	48	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	62	0	11	46	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	22	65	65	2	45	45	21	21	21	21
g / C, Green / Cycle	0.22	0.65	0.65	0.02	0.45	0.45	0.21	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.20	0.41	0.01	0.01	0.43	0.14	0.14	0.07	0.05	0.04
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1208	1457	1166	1626
c, Capacity [veh/h]	347	2070	924	32	1440	643	268	312	230	348
d1, Uniform Delay [s]	38.33	10.68	6.31	48.37	26.55	17.64	41.01	33.15	39.42	32.09
k, delay calibration	0.21	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.85	1.53	0.02	6.98	15.14	1.27	2.67	0.58	0.60	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.64	0.01	0.37	0.95	0.31	0.65	0.32	0.26	0.17
d, Delay for Lane Group [s/veh]	55.17	12.20	6.33	55.35	41.69	18.90	43.68	33.73	40.02	32.32
Lane Group LOS	E	B	A	E	D	B	D	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	9.17	8.28	0.08	0.36	17.98	3.13	4.37	2.06	1.37	1.20
50th-Percentile Queue Length [ft/ln]	229.29	207.10	1.89	8.92	449.56	78.27	109.20	51.56	34.36	30.07
95th-Percentile Queue Length [veh/ln]	14.14	13.00	0.14	0.64	24.94	5.64	7.80	3.71	2.47	2.16
95th-Percentile Queue Length [ft/ln]	353.46	325.11	3.40	16.05	623.43	140.88	194.89	92.81	61.86	54.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.17	12.20	6.33	55.35	41.69	18.90	43.68	33.73	33.73	40.02	32.32	32.32
Movement LOS	E	B	A	E	D	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	20.48			38.91			40.09			36.17		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	30.52											
Intersection LOS	C											
Intersection V/C	0.774											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	3.076	3.339	2.338	2.005
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1160	840	460	460
d_b, Bicycle Delay [s]	8.82	16.82	29.65	29.65
l_b,int, Bicycle LOS Score for Intersection	2.927	2.936	2.098	1.764
Bicycle LOS	C	C	B	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Moreno Valley Elementary School

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Scenario 12 CU+P PM
5/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lasselle St/Cottonwood Ave	Signalized	HCM 6th Edition	SB Left	0.394	22.3	C
2	Morrison St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.221	24.1	C
3	Nason St/Eucalyptus Ave	Signalized	HCM 6th Edition	NB Left	0.548	22.0	C
4	Nason St/Cottonwood Ave	Signalized	HCM 6th Edition	NB Left	0.496	18.2	B
5	Nason St/Bay Ave	Two-way stop	HCM 6th Edition	WB Left	0.086	86.1	F
6	Nason St/Alessandro Blvd	Signalized	HCM 6th Edition	SB Left	0.531	27.2	C
7	Moreno Beach Dr/Cottonwood Ave	Signalized	HCM 6th Edition	EB Thru	0.636	22.0	C
8	Moreno Beach Dr/Alessandro Blvd	Signalized	HCM 6th Edition	WB Left	0.788	45.6	D
9	Nason Street Egress Driveway	Two-way stop	HCM 6th Edition	WB Right	0.220	15.9	C
10	Bay Avenue Ingress Driveway	Two-way stop	HCM 6th Edition	EB Left	0.146	7.6	A
11	Nason St/Dracaea Ave	Signalized	HCM 6th Edition	SB Left	0.546	12.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Lasselle St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	60.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	72	313	43	22	255	25	21	191	92	56	177	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	11	0	0	30	0	0	2
Total Hourly Volume [veh/h]	72	313	30	22	255	14	21	191	62	56	177	17
Peak Hour Factor	0.9270	0.9270	0.9270	0.9360	0.9360	0.9360	0.8650	0.8650	0.8650	0.8750	0.8750	0.8750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	84	8	6	68	4	6	55	18	16	51	5
Total Analysis Volume [veh/h]	78	338	32	24	272	15	24	221	72	64	202	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	23	0	12	24	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	33	33	3	30	30	3	14	5	16	16
g / C, Green / Cycle	0.08	0.47	0.47	0.04	0.43	0.43	0.04	0.19	0.07	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.04	0.18	0.02	0.01	0.15	0.01	0.01	0.16	0.04	0.06	0.06
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1870	1589	1781	1792	1781	1870	1815
c, Capacity [veh/h]	142	871	740	70	795	676	70	348	130	426	413
d1, Uniform Delay [s]	31.10	12.24	10.23	32.86	13.58	11.72	32.86	27.28	31.30	22.28	22.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.26	1.30	0.11	2.85	1.17	0.06	2.85	5.56	2.84	0.32	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.39	0.04	0.34	0.34	0.02	0.34	0.84	0.49	0.26	0.27
d, Delay for Lane Group [s/veh]	34.36	13.55	10.34	35.71	14.76	11.78	35.71	32.84	34.15	22.60	22.64
Lane Group LOS	C	B	B	D	B	B	D	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.36	3.40	0.27	0.44	2.89	0.14	0.44	5.03	1.11	1.48	1.46
50th-Percentile Queue Length [ft/ln]	33.93	85.07	6.67	11.03	72.32	3.42	11.03	125.76	27.78	36.97	36.48
95th-Percentile Queue Length [veh/ln]	2.44	6.13	0.48	0.79	5.21	0.25	0.79	8.71	2.00	2.66	2.63
95th-Percentile Queue Length [ft/ln]	61.07	153.13	12.01	19.85	130.17	6.15	19.85	217.71	50.01	66.55	65.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.36	13.55	10.34	35.71	14.76	11.78	35.71	32.84	32.84	34.15	22.62	22.64
Movement LOS	C	B	B	D	B	B	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.94			16.23			33.06			25.21		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.26											
Intersection LOS	C											
Intersection V/C	0.394											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.358	2.307	2.322	2.263
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	543	571	571	571
d_b, Bicycle Delay [s]	18.58	17.86	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	2.320	2.091	2.132	1.796
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Morrison St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.221

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	1000.0	0.00	0.00	1000.0	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	119	34	24	93	20	29	201	10	30	222	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	4	0	0	5	0	0	4	0	0	4
Total Hourly Volume [veh/h]	8	119	30	24	93	15	29	201	6	30	222	18
Peak Hour Factor	0.8620	0.8620	0.8620	0.8550	0.8550	0.8550	0.8180	0.8180	0.8180	0.8020	0.8020	0.8020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	35	9	7	27	4	9	61	2	9	69	6
Total Analysis Volume [veh/h]	9	138	35	28	109	18	35	246	7	37	277	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	24	0	11	21	0	11	24	0	11	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	36	36	3	38	38	4	12	4	12	12
g / C, Green / Cycle	0.02	0.51	0.51	0.04	0.54	0.54	0.05	0.17	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.05	0.02	0.03	0.04	0.02	0.14	0.02	0.08	0.08
s, saturation flow rate [veh/h]	1781	1870	1744	1781	1870	1780	1781	1861	1781	1870	1822
c, Capacity [veh/h]	30	954	890	77	1003	955	90	309	93	314	306
d1, Uniform Delay [s]	34.05	8.82	8.84	32.62	7.80	7.81	32.25	28.23	32.15	26.41	26.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.31	0.19	0.21	2.88	0.12	0.13	2.73	5.36	2.71	1.14	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.09	0.10	0.36	0.06	0.07	0.39	0.82	0.40	0.48	0.49
d, Delay for Lane Group [s/veh]	39.36	9.01	9.05	35.50	7.92	7.94	34.97	33.59	34.86	27.54	27.62
Lane Group LOS	D	A	A	D	A	A	C	C	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.19	0.66	0.65	0.51	0.44	0.43	0.63	4.37	0.66	2.28	2.25
50th-Percentile Queue Length [ft/ln]	4.80	16.46	16.20	12.74	10.97	10.87	15.63	109.27	16.46	57.02	56.33
95th-Percentile Queue Length [veh/ln]	0.35	1.19	1.17	0.92	0.79	0.78	1.13	7.80	1.19	4.11	4.06
95th-Percentile Queue Length [ft/ln]	8.63	29.63	29.16	22.92	19.75	19.57	28.14	194.99	29.63	102.64	101.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.36	9.03	9.05	35.50	7.93	7.94	34.97	33.59	33.59	34.86	27.58	27.62
Movement LOS	D	A	A	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	10.53			12.91			33.76			28.39		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	24.12											
Intersection LOS	C											
Intersection V/C	0.221											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersection	2.361	2.366	2.272	2.285
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	571	486	571	571
d_b, Bicycle Delay [s]	17.86	20.06	17.86	17.86
l_b,int, Bicycle LOS Score for Intersection	1.713	1.692	2.041	1.840
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Nason St/Eucalyptus Ave

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.548

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	275.00	100.00	100.00	250.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	92	856	277	12	1038	85	121	156	98	201	156	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	55	0	0	27	0	0	47	0	0	14
Total Hourly Volume [veh/h]	92	856	222	12	1038	58	121	156	51	201	156	9
Peak Hour Factor	0.8400	0.8400	0.8400	0.9570	0.9570	0.9570	0.7450	0.7450	0.7450	0.9180	0.9180	0.9180
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	255	66	3	271	15	41	52	17	55	42	2
Total Analysis Volume [veh/h]	110	1019	264	13	1085	61	162	209	68	219	170	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	28	0	11	27	0	16	30	0	16	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	18	0	0	18	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	48	48	2	43	43	10	7	7	12	10	10
g / C, Green / Cycle	0.08	0.56	0.56	0.02	0.50	0.50	0.11	0.09	0.09	0.14	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.06	0.29	0.17	0.01	0.30	0.04	0.09	0.06	0.04	0.12	0.05	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	3560	1589	1781	3560	1589
c, Capacity [veh/h]	142	1991	889	42	1790	799	200	313	140	252	417	186
d1, Uniform Delay [s]	38.46	11.59	9.92	40.94	15.14	10.95	36.92	37.64	37.02	35.78	34.86	33.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.71	0.94	0.85	4.22	1.53	0.19	7.57	2.45	2.60	8.82	0.64	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.78	0.51	0.30	0.31	0.61	0.08	0.81	0.67	0.49	0.87	0.41	0.05
d, Delay for Lane Group [s/veh]	47.17	12.54	10.78	45.15	16.68	11.13	44.49	40.09	39.62	44.61	35.50	33.52
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.56	5.62	2.59	0.31	7.27	0.60	3.65	2.18	1.43	4.97	1.64	0.19
50th-Percentile Queue Length [ft/ln]	63.95	140.40	64.65	7.84	181.87	15.04	91.23	54.53	35.72	124.15	41.06	4.68
95th-Percentile Queue Length [veh/ln]	4.60	9.50	4.65	0.56	11.70	1.08	6.57	3.93	2.57	8.62	2.96	0.34
95th-Percentile Queue Length [ft/ln]	115.11	237.57	116.36	14.10	292.46	27.08	164.21	98.15	64.29	215.52	73.91	8.42

Movement, Approach, & Intersection Results

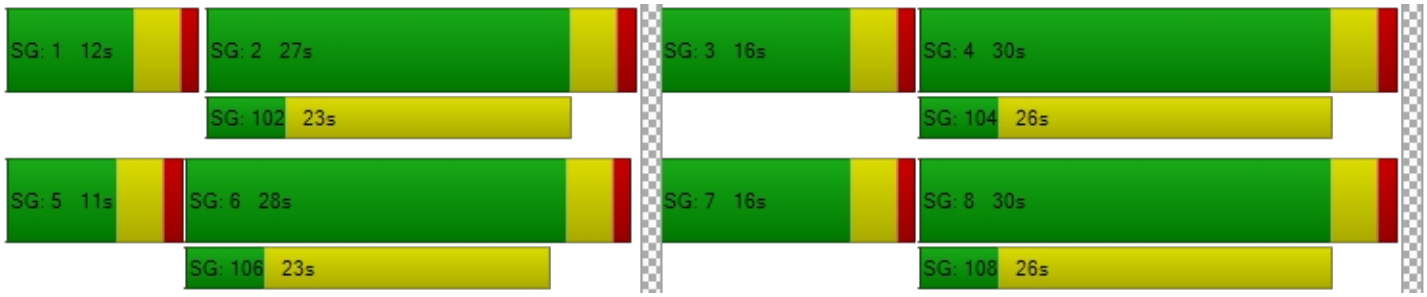
d_M, Delay for Movement [s/veh]	47.17	12.54	10.78	45.15	16.68	11.13	44.49	40.09	39.62	44.61	35.50	33.52
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	14.94			16.70			41.64			40.45		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.00											
Intersection LOS	C											
Intersection V/C	0.548											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.996	2.878	2.657	2.626
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	541	612	612
d_b, Bicycle Delay [s]	21.89	22.61	20.48	20.48
l_b,int, Bicycle LOS Score for Intersection	2.754	2.538	1.961	1.900
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Nason St/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name														
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration														
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	200.	100.	100.	100.	240.	100.	100.	100.	90.00	100.00	50.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00				30.00			30.00		
Grade [%]	0.00				0.00				0.00			0.00		
Curb Present	No				No				No			No		
Crosswalk	Yes				Yes				Yes			Yes		

Volumes

Name														
Base Volume Input [veh/h]	17	85	979	20	0	50	937	163	122	50	75	25	56	46
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	23	0	0	27	0	0	28
Total Hourly Volume [veh/h]	17	85	979	20	0	50	937	140	122	50	48	25	56	18
Peak Hour Factor	0.89	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.7900	0.7900	0.7900	0.7330	0.7330	0.7330
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	24	273	6	0	14	271	41	39	16	15	9	19	6
Total Analysis Volume [veh/h]	19	95	1091	22	0	58	1084	162	154	63	61	34	76	25
Presence of On-Street Parking	No			No	No			No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0		
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0		
Bicycle Volume [bicycles/h]	0				0				0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	0	1	6	0	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	11	21	0	0	11	21	0	13	32	0	11	30	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	0	12	0	0	0	12	0	0	21	0	0	21	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No		No	No	
Maximum Recall		No	No			No	No		No	No		No	No	
Pedestrian Recall		No	No			No	No		No	No		No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	40	40	5	38	38	8	11	11	4	6	6
g / C, Green / Cycle	0.09	0.53	0.53	0.07	0.51	0.51	0.11	0.14	0.14	0.05	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.06	0.31	0.01	0.03	0.30	0.10	0.09	0.03	0.04	0.02	0.04	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	153	1879	839	120	1812	809	194	267	227	88	156	132
d1, Uniform Delay [s]	33.57	12.09	8.50	33.83	13.04	10.10	32.70	28.60	28.73	34.66	32.95	32.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.93	1.32	0.06	3.01	1.47	0.56	7.18	0.45	0.63	2.77	2.35	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.58	0.03	0.48	0.60	0.20	0.79	0.24	0.27	0.39	0.49	0.19
d, Delay for Lane Group [s/veh]	40.50	13.41	8.56	36.84	14.51	10.65	39.88	29.04	29.36	37.44	35.30	32.80
Lane Group LOS	D	B	A	D	B	B	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.27	5.79	0.17	1.10	6.07	1.45	3.04	1.01	0.99	0.66	1.39	0.44
50th-Percentile Queue Length [ft/ln]	56.71	144.75	4.20	27.38	151.86	36.14	75.95	25.30	24.80	16.40	34.74	10.95
95th-Percentile Queue Length [veh/ln]	4.08	9.74	0.30	1.97	10.12	2.60	5.47	1.82	1.79	1.18	2.50	0.79
95th-Percentile Queue Length [ft/ln]	102.08	243.41	7.56	49.28	252.91	65.05	136.72	45.54	44.64	29.52	62.53	19.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.5	40.5	13.4	8.56	36.8	36.8	14.5	10.6	39.88	29.04	29.36	37.44	35.30	32.80
Movement LOS	D	D	B	A	D	D	B	B	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	15.84				15.02				35.11			35.37		
Approach LOS	B				B				D			D		
d_I, Intersection Delay [s/veh]	18.19													
Intersection LOS	B													
Intersection V/C	0.496													

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.04	29.04	29.04	29.04
l_p,int, Pedestrian LOS Score for Intersection	2.841	2.905	2.323	2.238
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	453	453	747	693
d_b, Bicycle Delay [s]	22.43	22.43	14.73	16.01
l_b,int, Bicycle LOS Score for Intersection	2.494	2.607	2.063	1.829
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Nason St/Bay Ave

Control Type:	Two-way stop	Delay (sec / veh):	86.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.086

Intersection Setup

Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	200.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00			30.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	No		No			No	

Volumes

Name							
Base Volume Input [veh/h]	1111	9	12	51	919	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1111	9	12	51	919	1	0
Peak Hour Factor	0.8710	0.8710	0.8770	0.8770	0.8770	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	319	3	3	15	262	1	0
Total Analysis Volume [veh/h]	1276	10	14	58	1048	4	0
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.09	0.11	0.01	0.09	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	29.42	14.05	0.00	86.14	17.06
Movement LOS	A	A	D	B	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.71	0.71	0.00	0.13	0.13
95th-Percentile Queue Length [ft/ln]	0.00	0.00	17.75	17.75	0.00	3.30	3.30
d_A, Approach Delay [s/veh]	0.00		1.10			86.14	
Approach LOS	A		A			F	
d_I, Intersection Delay [s/veh]	0.65						
Intersection LOS	F						

Intersection Level Of Service Report
Intersection 6: Nason St/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	27.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.531

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1	2	0	1	2	0	0	1
Entry Pocket Length [ft]	285.	100.	100.	285.	250.	100.	100.	320.	250.00	100.00	120.00	235.	100.	100.	235.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.2
Speed [mph]	30.00				30.00				30.00			30.00			
Grade [%]	0.00				0.00				0.00			0.00			
Curb Present	No				No				No			No			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	168	867	148	0	105	714	93	136	425	127	0	20	257	86
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	0.00	2.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	101	0	0	0	40	0	0	77	0	0	0	54
Total Hourly Volume [veh/h]	0	168	867	47	0	105	714	53	136	425	50	0	20	257	32
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.9770	0.9770	0.9770	0.91	0.91	0.91	0.91
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	48	247	13	0	30	205	15	35	109	13	0	5	70	9
Total Analysis Volume [veh/h]	0	191	986	53	0	121	820	61	139	435	51	0	22	280	35
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0				0				0			0			
v_di, Inbound Pedestrian Volume crossing major street	0				0				0			0			
v_co, Outbound Pedestrian Volume crossing minor stree	0				0				0			0			
v_ci, Inbound Pedestrian Volume crossing minor street	0				0				0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	0	5	2	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	18	27	0	0	21	30	0	11	36	0	0	11	36	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	18	0	0	0	21	0	0	24	0	0	0	27	0
Delayed Vehicle Green [s]	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
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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
Detector Length [ft]	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	48	48	8	44	44	7	18	18	5	5	16	16
g / C, Green / Cycle	0.13	0.50	0.50	0.09	0.46	0.46	0.07	0.19	0.19	0.05	0.05	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.11	0.28	0.03	0.07	0.16	0.04	0.04	0.12	0.03	0.01	0.01	0.15	0.02
s, saturation flow rate [veh/h]	1781	3560	1615	1810	5094	1589	3459	3618	1589	1810	1810	1900	1615
c, Capacity [veh/h]	227	1786	810	155	2343	731	251	697	306	94	94	327	278
d1, Uniform Delay [s]	40.60	16.35	12.22	42.63	16.54	14.43	42.63	35.24	32.03	43.3	43.3	38.2	33.3
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.26	1.24	0.16	8.24	0.41	0.22	1.89	0.92	0.25	1.26	1.26	6.48	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.55	0.07	0.78	0.35	0.08	0.55	0.62	0.17	0.23	0.23	0.86	0.13
d, Delay for Lane Group [s/veh]	48.86	17.58	12.38	50.87	16.95	14.65	44.52	36.16	32.28	44.5	44.5	44.7	33.5
Lane Group LOS	D	B	B	D	B	B	D	D	C	D	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.84	7.29	0.60	3.11	3.79	0.77	1.63	4.65	0.99	0.53	0.53	6.83	0.70
50th-Percentile Queue Length [ft/ln]	120.94	182.31	14.91	77.85	94.63	19.13	40.79	116.22	24.83	13.1	13.1	170.	17.3
95th-Percentile Queue Length [veh/ln]	8.44	11.72	1.07	5.61	6.81	1.38	2.94	8.18	1.79	0.95	0.95	11.1	1.25
95th-Percentile Queue Length [ft/ln]	211.12	293.02	26.84	140.14	170.33	34.43	73.42	204.61	44.70	23.7	23.7	277.	31.2

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.8	48.8	17.5	12.3	50.8	50.8	16.9	14.6	44.52	36.16	32.28	44.5	44.5	44.7	33.5
Movement LOS	D	D	B	B	D	D	B	B	D	D	C	D	D	D	C
d_A, Approach Delay [s/veh]	22.22				20.91				37.70			43.63			
Approach LOS	C				C				D			D			
d_I, Intersection Delay [s/veh]	27.21														
Intersection LOS	C														
Intersection V/C	0.531														

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	3.062	3.061	2.885	2.713
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	484	547	674	674
d_b, Bicycle Delay [s]	27.28	25.06	20.89	20.89
l_b,int, Bicycle LOS Score for Intersection	2.658	2.066	2.139	2.168
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Moreno Beach Dr/Cottonwood Ave

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.636

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	140.00	100.00	100.00	215.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	584	38	63	825	59	32	37	23	42	45	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	25	0	0	9	0	0	12
Total Hourly Volume [veh/h]	14	584	33	63	825	34	32	37	14	42	45	38
Peak Hour Factor	0.8900	0.8900	0.8900	0.9510	0.9510	0.9510	0.8390	0.8390	0.8390	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	164	9	17	217	9	10	11	4	12	13	11
Total Analysis Volume [veh/h]	16	656	37	66	868	36	38	44	17	50	53	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Split	Split
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	15	0	11	15	0	0	51	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	12	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	57	57	6	60	7	10
g / C, Green / Cycle	0.03	0.59	0.59	0.06	0.63	0.07	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.35	0.02	0.04	0.49	0.06	0.08
s, saturation flow rate [veh/h]	1781	1870	1589	1781	1857	1782	1747
c, Capacity [veh/h]	46	1111	944	109	1168	130	181
d1, Uniform Delay [s]	45.50	12.08	8.03	43.50	12.74	43.27	41.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.35	2.31	0.08	5.27	5.02	8.91	8.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.59	0.04	0.60	0.77	0.76	0.82
d, Delay for Lane Group [s/veh]	49.85	14.39	8.11	48.77	17.76	52.19	50.41
Lane Group LOS	D	B	A	D	B	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	Yes
50th-Percentile Queue Length [veh/ln]	0.42	8.61	0.32	1.66	13.76	2.59	3.80
50th-Percentile Queue Length [ft/ln]	10.62	215.29	7.91	41.53	343.89	64.64	94.94
95th-Percentile Queue Length [veh/ln]	0.76	13.42	0.57	2.99	19.84	4.65	6.84
95th-Percentile Queue Length [ft/ln]	19.11	335.60	14.24	74.76	495.95	116.35	170.90

Movement, Approach, & Intersection Results

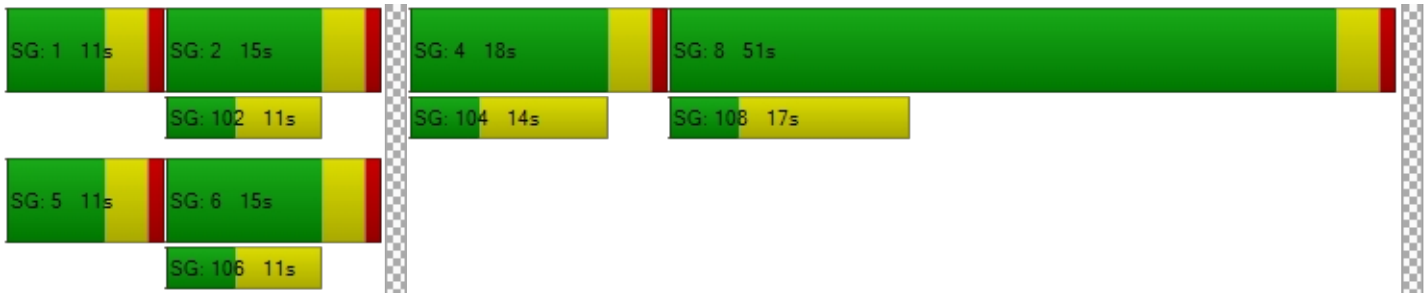
d_M, Delay for Movement [s/veh]	49.85	14.39	8.11	48.77	17.76	17.76	52.19	52.19	52.19	50.41	50.41	50.41
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	14.86			19.87			52.19			50.41		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.03											
Intersection LOS	C											
Intersection V/C	0.636											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.93	38.93	38.93	38.93
l_p,int, Pedestrian LOS Score for Intersection	2.546	2.547	1.848	1.888
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	232	232	989	295
d_b, Bicycle Delay [s]	37.14	37.14	12.13	34.53
l_b,int, Bicycle LOS Score for Intersection	2.738	3.201	1.738	1.824
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Moreno Beach Dr/Alessandro Blvd

Control Type:	Signalized	Delay (sec / veh):	45.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.788

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	125.00	100.00	100.00	285.00	100.00	100.00	100.00	100.00	100.00	185.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	79	515	51	20	688	126	113	262	85	88	144	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	28	0	0	33	0	0	9
Total Hourly Volume [veh/h]	79	515	34	20	688	98	113	262	52	88	144	21
Peak Hour Factor	0.8160	0.8160	0.8160	0.8920	0.8920	0.8920	0.8870	0.8870	0.8870	0.7580	0.7580	0.7580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	10	6	193	27	32	74	15	29	47	7
Total Analysis Volume [veh/h]	97	631	42	22	771	110	127	295	59	116	190	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	63	0	11	63	0	17	29	0	12	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	9	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	60	4	56	10	28	8	26
g / C, Green / Cycle	0.06	0.52	0.03	0.49	0.09	0.24	0.07	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.36	0.01	0.47	0.07	0.19	0.07	0.12
s, saturation flow rate [veh/h]	1781	1879	1810	1859	1810	1817	1781	1829
c, Capacity [veh/h]	108	975	56	908	155	439	124	413
d1, Uniform Delay [s]	53.63	20.76	54.68	28.60	51.72	41.04	53.25	39.11
k, delay calibration	0.11	0.22	0.11	0.42	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.08	1.76	4.50	20.96	10.23	14.55	24.73	4.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.69	0.40	0.97	0.82	0.81	0.94	0.53
d, Delay for Lane Group [s/veh]	74.71	22.52	59.18	49.55	61.95	55.59	77.98	43.86
Lane Group LOS	E	C	E	D	E	E	E	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.42	13.57	0.69	27.81	4.04	11.16	4.18	5.95
50th-Percentile Queue Length [ft/ln]	85.42	339.29	17.37	695.30	100.90	278.92	104.53	148.82
95th-Percentile Queue Length [veh/ln]	6.15	19.61	1.25	36.46	7.26	16.63	7.53	9.95
95th-Percentile Queue Length [ft/ln]	153.75	490.33	31.27	911.52	181.61	415.87	188.16	248.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	74.71	22.52	22.52	59.18	49.55	49.55	61.95	55.59	55.59	77.98	43.86	43.86
Movement LOS	E	C	C	E	D	D	E	E	E	E	D	D
d_A, Approach Delay [s/veh]	29.10			49.79			57.27			55.71		
Approach LOS	C			D			E			E		
d_I, Intersection Delay [s/veh]	45.63											
Intersection LOS	D											
Intersection V/C	0.788											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	48.85	48.85	48.85	48.85
l_p,int, Pedestrian LOS Score for Intersection	2.552	2.690	2.306	2.200
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1026	1026	435	348
d_b, Bicycle Delay [s]	13.63	13.63	35.22	39.24
l_b,int, Bicycle LOS Score for Intersection	2.858	3.096	2.408	2.126
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Nason Street Egress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.220

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1103	0	0	981	0	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1103	0	0	981	0	84
Peak Hour Factor	0.8710	1.0000	1.0000	0.8770	1.0000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	317	0	0	280	0	23
Total Analysis Volume [veh/h]	1266	0	0	1119	0	93
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.22
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	15.91
Movement LOS	A			A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.83
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	20.75
d_A, Approach Delay [s/veh]	0.00		0.00		15.91	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.60					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Bay Avenue Ingress Driveway

Control Type:	Two-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.146

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	59	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	59	1	1	0
Peak Hour Factor	0.9000	0.9000	0.2500	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	59	1	1	0
Total Analysis Volume [veh/h]	0	0	236	4	4	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.74	8.33	7.61	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.51	0.51	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	12.77	12.77	0.00	0.00
d_A, Approach Delay [s/veh]	10.54		7.48		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	7.36					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 11: Nason St/Dracaea Ave

Control Type:	Signalized	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	59	1210	18	13	1027	123	119	3	54	12	6	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	38	0	0	23	0	0	3
Total Hourly Volume [veh/h]	59	1210	13	13	1027	85	119	3	31	12	6	5
Peak Hour Factor	0.8880	0.8880	0.8880	0.8840	0.8840	0.8840	0.8550	0.8550	0.8550	0.5750	0.5750	0.5750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	341	4	4	290	24	35	1	9	5	3	2
Total Analysis Volume [veh/h]	66	1363	15	15	1162	96	139	4	36	21	10	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	18	43	0	15	40	0	0	27	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	57	57	2	53	53	14	14	14	14
g / C, Green / Cycle	0.07	0.67	0.67	0.02	0.62	0.62	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.43	0.01	0.01	0.36	0.07	0.11	0.03	0.02	0.01
s, saturation flow rate [veh/h]	1603	3204	1431	1603	3204	1431	1254	1452	1230	1553
c, Capacity [veh/h]	105	2133	952	40	2003	894	250	244	230	261
d1, Uniform Delay [s]	38.73	8.27	4.80	40.80	9.37	6.40	36.04	30.23	33.62	29.77
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.11	1.48	0.03	5.74	1.23	0.24	1.93	0.31	0.17	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.64	0.02	0.38	0.58	0.11	0.56	0.16	0.09	0.07
d, Delay for Lane Group [s/veh]	44.84	9.75	4.83	46.54	10.60	6.64	37.98	30.55	33.78	29.88
Lane Group LOS	D	A	A	D	B	A	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.50	6.39	0.08	0.37	5.79	0.67	2.89	0.71	0.39	0.33
50th-Percentile Queue Length [ft/ln]	37.46	159.75	2.10	9.22	144.70	16.87	72.17	17.75	9.84	8.26
95th-Percentile Queue Length [veh/ln]	2.70	10.54	0.15	0.66	9.73	1.21	5.20	1.28	0.71	0.59
95th-Percentile Queue Length [ft/ln]	67.44	263.39	3.78	16.59	243.34	30.36	129.91	31.94	17.72	14.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.84	9.75	4.83	46.54	10.60	6.64	37.98	30.55	30.55	33.78	29.88	29.88
Movement LOS	D	A	A	D	B	A	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	11.30			10.73			36.32			31.93		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	12.86											
Intersection LOS	B											
Intersection V/C	0.546											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.98	33.98	33.98	33.98
l_p,int, Pedestrian LOS Score for Intersection	2.926	3.162	2.106	1.970
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	918	847	541	541
d_b, Bicycle Delay [s]	12.45	14.12	22.61	22.61
l_b,int, Bicycle LOS Score for Intersection	2.755	2.641	1.893	1.631
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Option 1: Nason St/Bay Ave Mitigation

Number	5						
Intersection	Nason St/Bay Ave						
Control Type	Signalized						
Analysis Method	HCM 6th Edition						
Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Base Volume Input [veh/h]	753	35	52	225	998	2	2
Total Analysis Volume [veh/h]	871	40	63	274	1217	4	4

Intersection Settings

Cycle Length [s]	70						
Coordination Type	Time of Day Pattern Coordinated						
Actuation Type	Fully actuated						
Lost time [s]	0.00						
Control Type	Permissive	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	0	5	2	7	0
Auxiliary Signal Groups							
Lead / Lag	-	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	7	7	0
Maximum Green [s]	30	0	0	30	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.0
Split [s]	18	0	0	22	40	30	0
Walk [s]	5	0	0	0	5	5	0
Pedestrian Clearance [s]	9	0	0	0	10	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No			No	No	No	
Maximum Recall	No			No	No	No	
Pedestrian Recall	No			No	No	No	
Pedestrian Signal Group	0						
Pedestrian Walk [s]	0						
Pedestrian Clearance [s]	0						

Lane Group Calculations

g / C, Green / Cycle	0.58	0.58	0.24	0.87	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.27	0.03	0.21	0.38	0.00	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3204	1431	1603	3204	1603	1431
c, Capacity [veh/h]	1849	825	378	2787	26	23
X, volume / capacity	0.47	0.05	0.89	0.44	0.15	0.17
d, Delay for Lane Group [s/veh]	9.48	6.56	33.32	1.46	36.75	37.52
Lane Group LOS	A	A	C	A	D	D

Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.40	0.24	5.90	0.19	0.08	0.09
50th-Percentile Queue Length [ft/ln]	85.12	6.11	147.42	4.84	2.12	2.19
95th-Percentile Queue Length [veh/ln]	6.13	0.44	9.88	0.35	0.15	0.16
95th-Percentile Queue Length [ft/ln]	153.22	11.00	246.98	8.70	3.82	3.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.48	6.56	33.32	33.32	1.46	36.75	37.52
Movement LOS	A	A	C	C	A	D	D
Critical Movement	No	No	No	No	No	No	Yes
d_A, Approach Delay [s/veh]	9.35		8.37			37.13	
Approach LOS	A		A			D	
d_I, Intersection Delay [s/veh]	8.82						
Intersection LOS	A						
Intersection V/C	0.485						

Option 1: Nason St/Bay Ave Mitigation

Number	5						
Intersection	Nason St/Bay Ave						
Control Type	Signalized						
Analysis Method	HCM 6th Edition						
Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Base Volume Input [veh/h]	910	9	12	51	762	1	0
Total Analysis Volume [veh/h]	1045	10	14	58	869	4	0

Intersection Settings

Cycle Length [s]	75						
Coordination Type	Time of Day Pattern Coordinated						
Actuation Type	Fully actuated						
Lost time [s]	0.00						
Control Type	Permissive	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	0	5	2	7	0
Auxiliary Signal Groups							
Lead / Lag	-	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	7	7	0
Maximum Green [s]	30	0	0	30	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.0
Split [s]	52	0	0	11	63	12	0
Walk [s]	5	0	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No			No	No	No	
Maximum Recall	No			No	No	No	
Pedestrian Recall	No			No	No	No	
Pedestrian Signal Group	0						
Pedestrian Walk [s]	0						
Pedestrian Clearance [s]	0						

Lane Group Calculations

g / C, Green / Cycle	0.76	0.76	0.07	0.89	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.33	0.01	0.04	0.27	0.00	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3204	1431	1603	3204	1603	1603
c, Capacity [veh/h]	2426	1083	119	2834	15	15
X, volume / capacity	0.43	0.01	0.61	0.31	0.14	0.14
d, Delay for Lane Group [s/veh]	3.85	2.25	38.65	0.97	41.16	41.16
Lane Group LOS	A	A	D	A	D	D

Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.85	0.03	1.40	0.11	0.05	0.05
50th-Percentile Queue Length [ft/ln]	46.37	0.66	35.04	2.76	1.32	1.32
95th-Percentile Queue Length [veh/ln]	3.34	0.05	2.52	0.20	0.09	0.09
95th-Percentile Queue Length [ft/ln]	83.47	1.18	63.07	4.97	2.37	2.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.85	2.25	38.65	38.65	0.97	41.16	41.16
Movement LOS	A	A	D	D	A	D	D
Critical Movement	No	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	3.83		3.85			41.16	
Approach LOS	A		A			D	
d_I, Intersection Delay [s/veh]	3.92						
Intersection LOS	A						
Intersection V/C	0.372						

Option 1: Nason St/Bay Ave Mitigation

Number	5						
Intersection	Nason St/Bay Ave						
Control Type	Signalized						
Analysis Method	HCM 6th Edition						
Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Base Volume Input [veh/h]	825	35	52	225	1092	2	2
Total Analysis Volume [veh/h]	954	40	63	274	1332	4	4

Intersection Settings

Cycle Length [s]	70						
Coordination Type	Time of Day Pattern Coordinated						
Actuation Type	Fully actuated						
Lost time [s]	0.00						
Control Type	Permissive	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	0	5	2	7	0
Auxiliary Signal Groups							
Lead / Lag	-	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	7	7	0
Maximum Green [s]	30	0	0	30	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.0
Split [s]	18	0	0	22	40	30	0
Walk [s]	5	0	0	0	5	5	0
Pedestrian Clearance [s]	9	0	0	0	10	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No			No	No	No	
Maximum Recall	No			No	No	No	
Pedestrian Recall	No			No	No	No	
Pedestrian Signal Group	0						
Pedestrian Walk [s]	0						
Pedestrian Clearance [s]	0						

Lane Group Calculations

g / C, Green / Cycle	0.58	0.58	0.24	0.87	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.30	0.03	0.21	0.42	0.00	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3204	1431	1603	3204	1603	1431
c, Capacity [veh/h]	1849	825	378	2787	26	23
X, volume / capacity	0.52	0.05	0.89	0.48	0.15	0.17
d, Delay for Lane Group [s/veh]	9.96	6.56	33.32	1.61	36.75	37.52
Lane Group LOS	A	A	C	A	D	D

Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.88	0.24	5.90	0.23	0.08	0.09
50th-Percentile Queue Length [ft/ln]	97.00	6.11	147.42	5.71	2.12	2.19
95th-Percentile Queue Length [veh/ln]	6.98	0.44	9.88	0.41	0.15	0.16
95th-Percentile Queue Length [ft/ln]	174.60	11.00	246.98	10.27	3.82	3.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.96	6.56	33.32	33.32	1.61	36.75	37.52
Movement LOS	A	A	C	C	A	D	D
Critical Movement	No	No	No	No	No	No	Yes
d_A, Approach Delay [s/veh]	9.83		8.01			37.13	
Approach LOS	A		A			D	
d_I, Intersection Delay [s/veh]	8.77						
Intersection LOS	A						
Intersection V/C	0.511						

Option 1: Nason St/Bay Ave Mitigation

Number	5						
Intersection	Nason St/Bay Ave						
Control Type	Signalized						
Analysis Method	HCM 6th Edition						
Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Base Volume Input [veh/h]	1000	9	12	51	837	1	0
Total Analysis Volume [veh/h]	1148	10	14	58	954	4	0

Intersection Settings

Cycle Length [s]	120						
Coordination Type	Time of Day Pattern Coordinated						
Actuation Type	Fully actuated						
Lost time [s]	0.00						
Control Type	Permissive	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	0	5	2	7	0
Auxiliary Signal Groups							
Lead / Lag	-	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	7	7	0
Maximum Green [s]	30	0	0	30	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.0
Split [s]	18	0	0	72	90	30	0
Walk [s]	5	0	0	0	5	5	0
Pedestrian Clearance [s]	9	0	0	0	10	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No			No	No	No	
Maximum Recall	No			No	No	No	
Pedestrian Recall	No			No	No	No	
Pedestrian Signal Group	0						
Pedestrian Walk [s]	0						
Pedestrian Clearance [s]	0						

Lane Group Calculations

g / C, Green / Cycle	0.84	0.84	0.06	0.93	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.36	0.01	0.04	0.30	0.00	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3204	1431	1603	3204	1603	1603
c, Capacity [veh/h]	2677	1195	91	2966	12	12
X, volume / capacity	0.43	0.01	0.79	0.32	0.16	0.16
d, Delay for Lane Group [s/veh]	3.04	1.65	69.84	0.76	65.06	65.06
Lane Group LOS	A	A	E	A	E	E

Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.51	0.03	2.51	0.12	0.08	0.08
50th-Percentile Queue Length [ft/ln]	62.63	0.76	62.66	2.96	2.02	2.02
95th-Percentile Queue Length [veh/ln]	4.51	0.05	4.51	0.21	0.15	0.15
95th-Percentile Queue Length [ft/ln]	112.73	1.36	112.79	5.33	3.64	3.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.04	1.65	69.84	69.84	0.76	65.06	65.06
Movement LOS	A	A	E	E	A	E	E
Critical Movement	No	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	3.03		5.61			65.06	
Approach LOS	A		A			E	
d_I, Intersection Delay [s/veh]	4.35						
Intersection LOS	A						
Intersection V/C	0.404						

Option 1: Nason St/Bay Ave Mitigation

Number	5						
Intersection	Nason St/Bay Ave						
Control Type	Signalized						
Analysis Method	HCM 6th Edition						
Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Base Volume Input [veh/h]	890	35	52	225	1178	2	2
Total Analysis Volume [veh/h]	1029	40	63	274	1437	4	4

Intersection Settings

Cycle Length [s]	70						
Coordination Type	Time of Day Pattern Coordinated						
Actuation Type	Fully actuated						
Lost time [s]	0.00						
Control Type	Permissive	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	0	5	2	7	0
Auxiliary Signal Groups							
Lead / Lag	-	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	7	7	0
Maximum Green [s]	30	0	0	30	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.0
Split [s]	18	0	0	22	40	30	0
Walk [s]	5	0	0	0	5	5	0
Pedestrian Clearance [s]	9	0	0	0	10	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No			No	No	No	
Maximum Recall	No			No	No	No	
Pedestrian Recall	No			No	No	No	
Pedestrian Signal Group	0						
Pedestrian Walk [s]	0						
Pedestrian Clearance [s]	0						

Lane Group Calculations

g / C, Green / Cycle	0.58	0.58	0.24	0.87	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.32	0.03	0.21	0.45	0.00	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3204	1431	1603	3204	1603	1431
c, Capacity [veh/h]	1849	825	378	2787	26	23
X, volume / capacity	0.56	0.05	0.89	0.52	0.15	0.17
d, Delay for Lane Group [s/veh]	10.45	6.56	33.32	1.76	36.75	37.52
Lane Group LOS	B	A	C	A	D	D

Critical Lane Group	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.35	0.24	5.90	0.27	0.08	0.09
50th-Percentile Queue Length [ft/ln]	108.63	6.11	147.42	6.63	2.12	2.19
95th-Percentile Queue Length [veh/ln]	7.76	0.44	9.88	0.48	0.15	0.16
95th-Percentile Queue Length [ft/ln]	194.10	11.00	246.98	11.94	3.82	3.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.45	6.56	33.32	33.32	1.76	36.75	37.52
Movement LOS	B	A	C	C	A	D	D
Critical Movement	No	No	No	No	No	No	Yes
d_A, Approach Delay [s/veh]	10.31		7.76			37.13	
Approach LOS	B		A			D	
d_I, Intersection Delay [s/veh]	8.80						
Intersection LOS	A						
Intersection V/C	0.534						

Option 1: Nason St/Bay Ave Mitigation

Number	5						
Intersection	Nason St/Bay Ave						
Control Type	Signalized						
Analysis Method	HCM 6th Edition						
Name							
Approach	Northbound		Southbound			Westbound	
Lane Configuration							
Turning Movement	Thru	Right	U-turn	Left	Thru	Left	Right
Base Volume Input [veh/h]	1111	9	12	51	919	1	0
Total Analysis Volume [veh/h]	1276	10	14	58	1048	4	0

Intersection Settings

Cycle Length [s]	90						
Coordination Type	Time of Day Pattern Coordinated						
Actuation Type	Fully actuated						
Lost time [s]	0.00						
Control Type	Permissive	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	6	0	0	5	2	7	0
Auxiliary Signal Groups							
Lead / Lag	-	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	7	7	0
Maximum Green [s]	30	0	0	30	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	1.0	0.0
Split [s]	48	0	0	11	59	31	0
Walk [s]	5	0	0	0	5	5	0
Pedestrian Clearance [s]	9	0	0	0	10	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	2.0	0.0
Minimum Recall	No			No	No	No	
Maximum Recall	No			No	No	No	
Pedestrian Recall	No			No	No	No	
Pedestrian Signal Group	0						
Pedestrian Walk [s]	0						
Pedestrian Clearance [s]	0						

Lane Group Calculations

g / C, Green / Cycle	0.79	0.79	0.07	0.90	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.40	0.01	0.04	0.33	0.00	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3204	1431	1603	3204	1603	1603
c, Capacity [veh/h]	2542	1135	105	2894	13	13
X, volume / capacity	0.50	0.01	0.69	0.36	0.15	0.15
d, Delay for Lane Group [s/veh]	3.91	1.95	48.84	0.98	49.80	49.80
Lane Group LOS	A	A	D	A	D	D

Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.66	0.03	1.77	0.14	0.06	0.06
50th-Percentile Queue Length [ft/ln]	66.51	0.68	44.21	3.54	1.59	1.59
95th-Percentile Queue Length [veh/ln]	4.79	0.05	3.18	0.26	0.11	0.11
95th-Percentile Queue Length [ft/ln]	119.73	1.23	79.58	6.38	2.85	2.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.91	1.95	48.84	48.84	0.98	49.80	49.80
Movement LOS	A	A	D	D	A	D	D
Critical Movement	No	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	3.90		4.06			49.80	
Approach LOS	A		A			D	
d_I, Intersection Delay [s/veh]	4.05						
Intersection LOS	A						
Intersection V/C	0.444						

APPENDIX D – SIGNAL WARRANT ANALYSIS

Nason Street/Bay Avenue

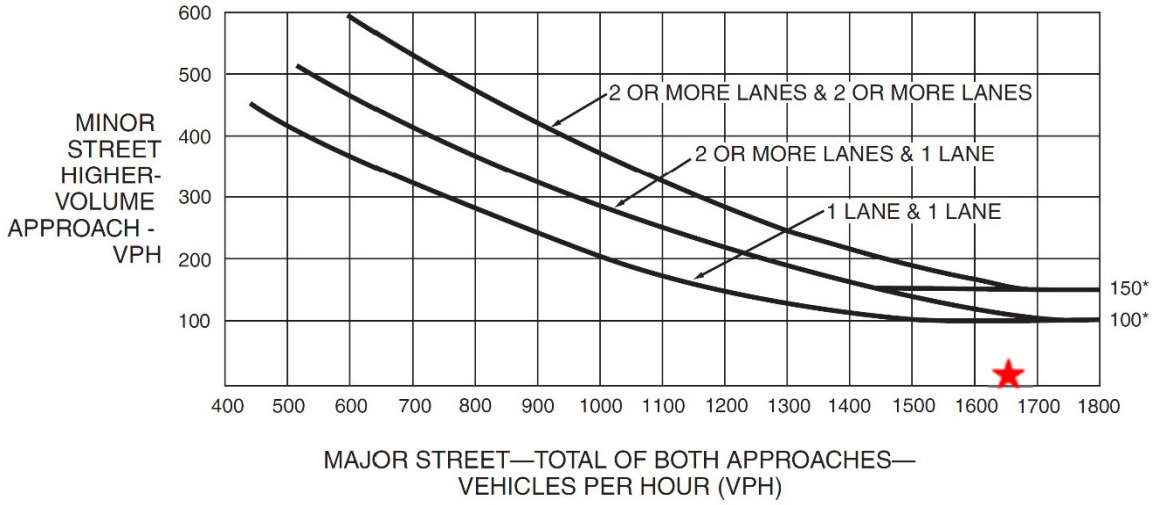
Existing AM Peak Hour

Minor Street Approach - 4 vehicles

Major Street (Both Approaches) – 1,660 vehicles

Meets Warrant - No

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

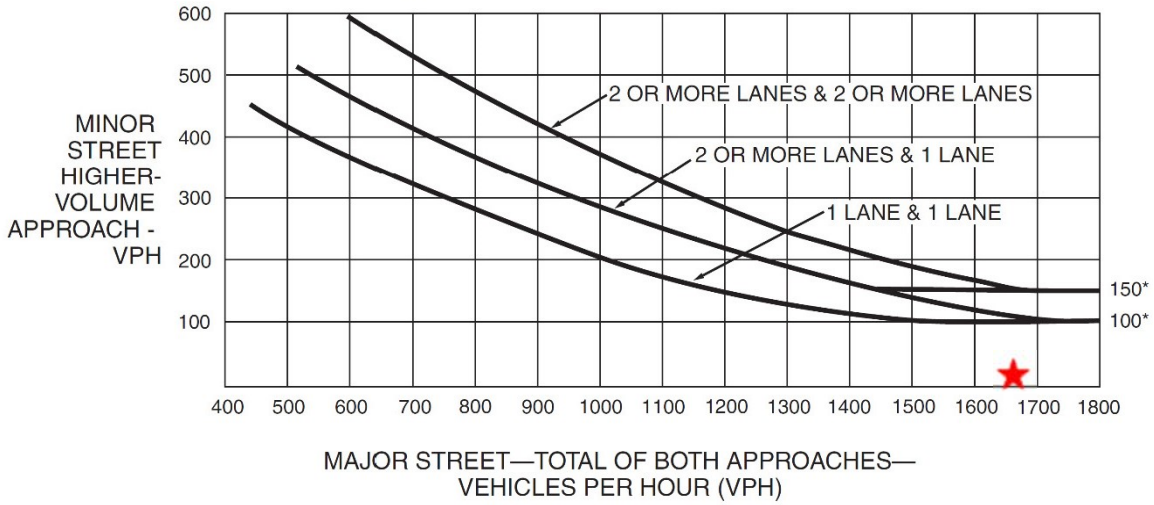
Existing PM Peak Hour

Minor Street Approach - 1 vehicles

Major Street (Both Approaches) – 1,657 vehicles

Meets Warrant - No

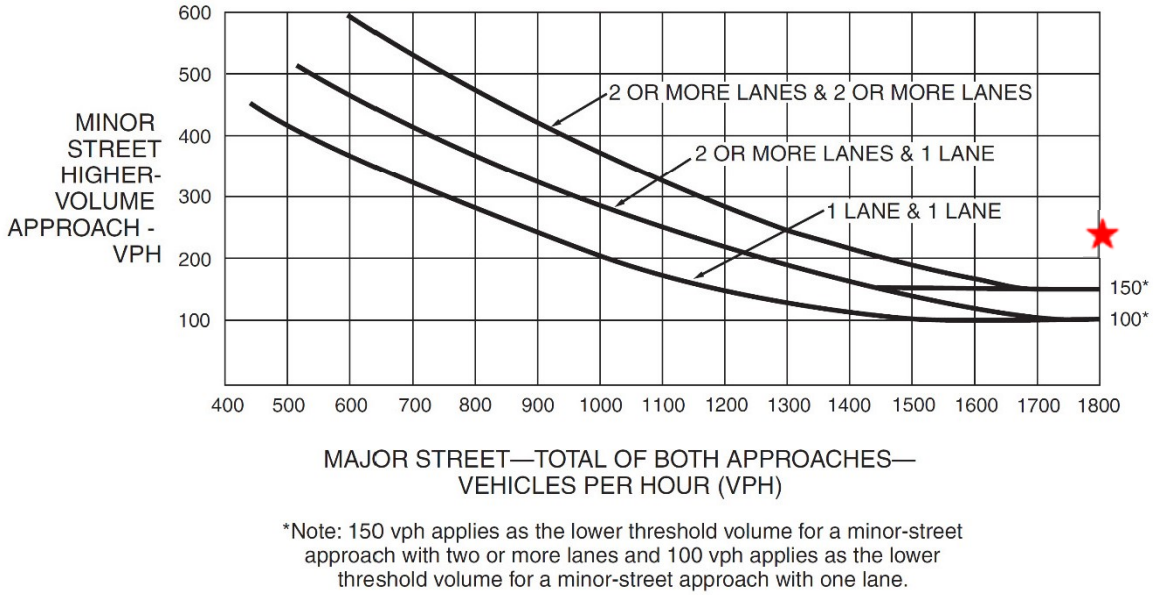
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Existing plus Project AM Peak Hour
Minor Street Approach - 229 vehicles
Major Street (Both Approaches) – 1,838 vehicles
Meets Warrant - Yes

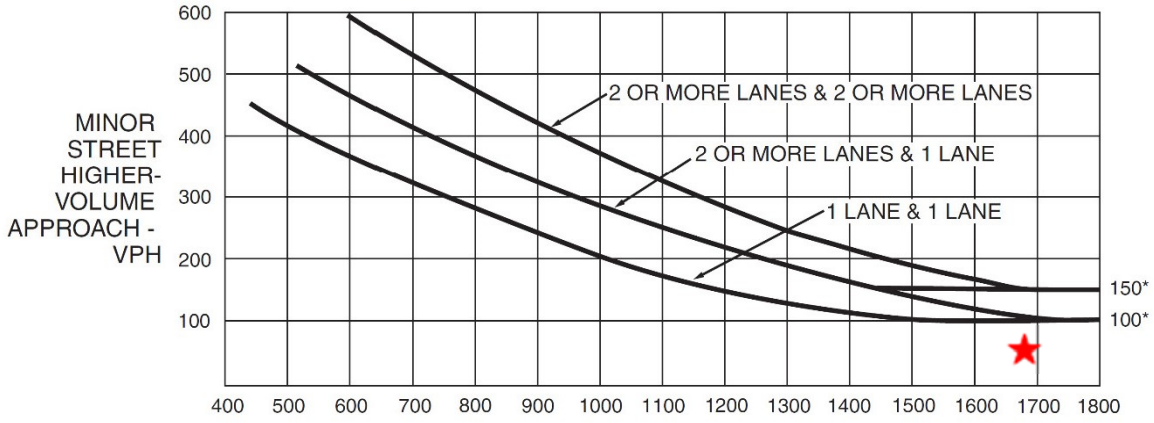
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Existing plus Project PM Peak Hour
Minor Street Approach - 52 vehicles
Major Street (Both Approaches) – 1,693 vehicles
Meets Warrant - No

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

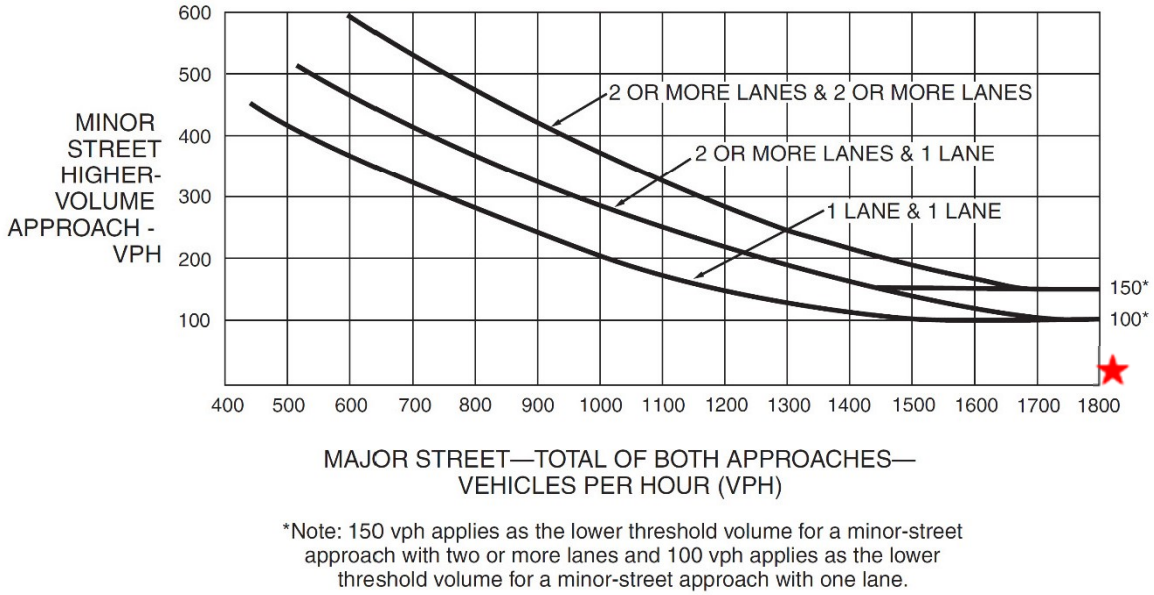
Opening Year AM Peak Hour

Minor Street Approach - 4 vehicles

Major Street (Both Approaches) – 1,826 vehicles

Meets Warrant - No

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

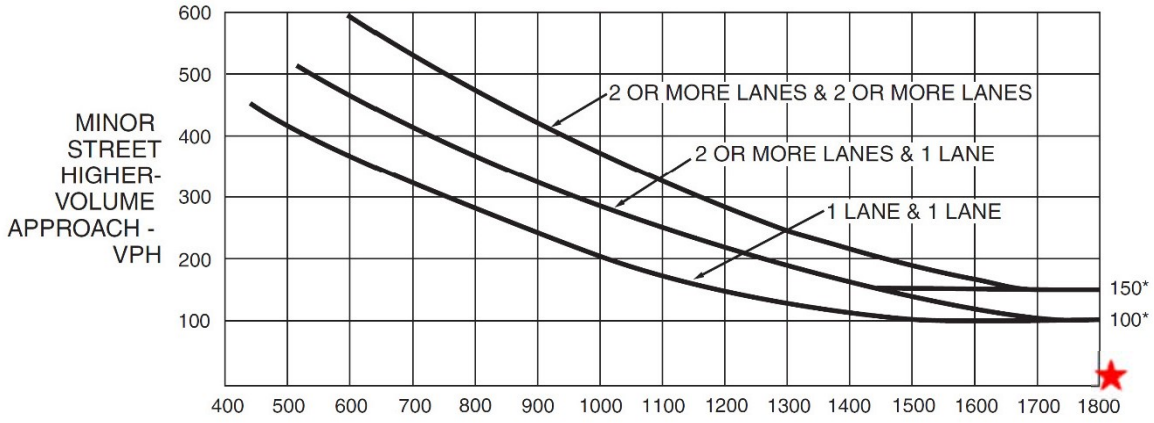
Opening Year PM Peak Hour

Minor Street Approach - 1 vehicles

Major Street (Both Approaches) – 1,813 vehicles

Meets Warrant - No

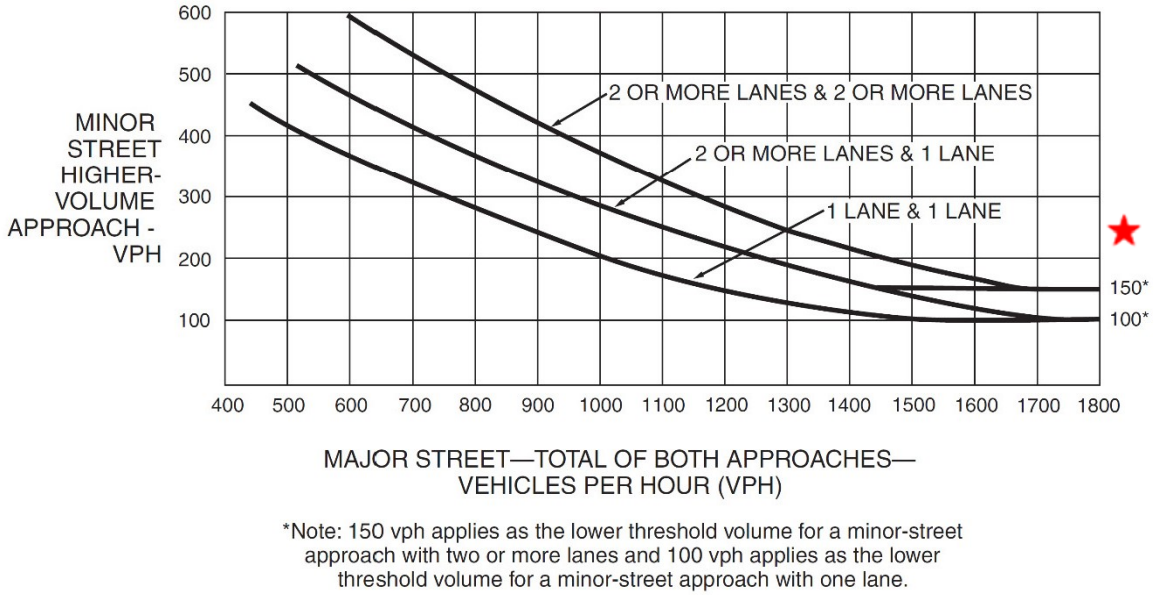
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Opening Year plus Project AM Peak Hour
Minor Street Approach - 229 vehicles
Major Street (Both Approaches) – 2,004 vehicles
Meets Warrant - Yes

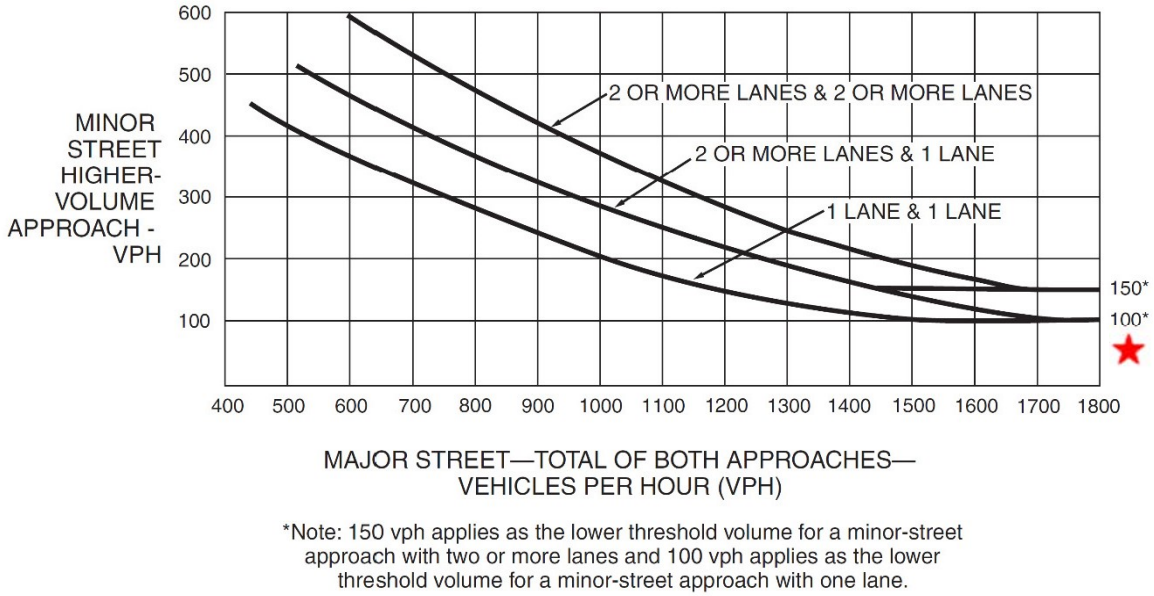
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Opening Year plus Project PM Peak Hour
Minor Street Approach - 52 vehicles
Major Street (Both Approaches) – 1,858 vehicles
Meets Warrant - No

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

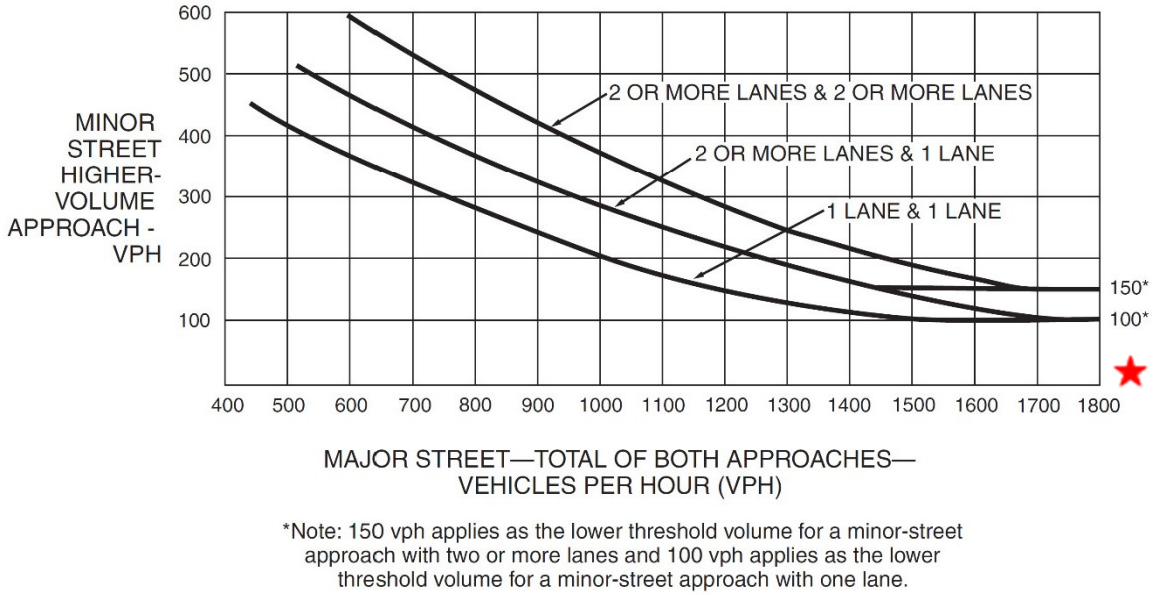
Cumulative Year AM Peak Hour

Minor Street Approach - 4 vehicles

Major Street (Both Approaches) – 1,977 vehicles

Meets Warrant - No

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

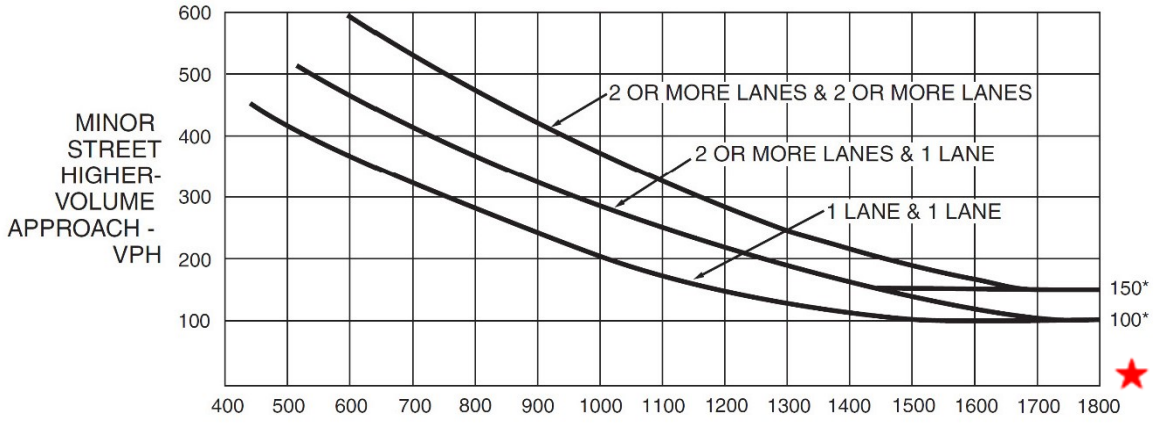
Cumulative PM Peak Hour

Minor Street Approach - 1 vehicles

Major Street (Both Approaches) – 2,006 vehicles

Meets Warrant - No

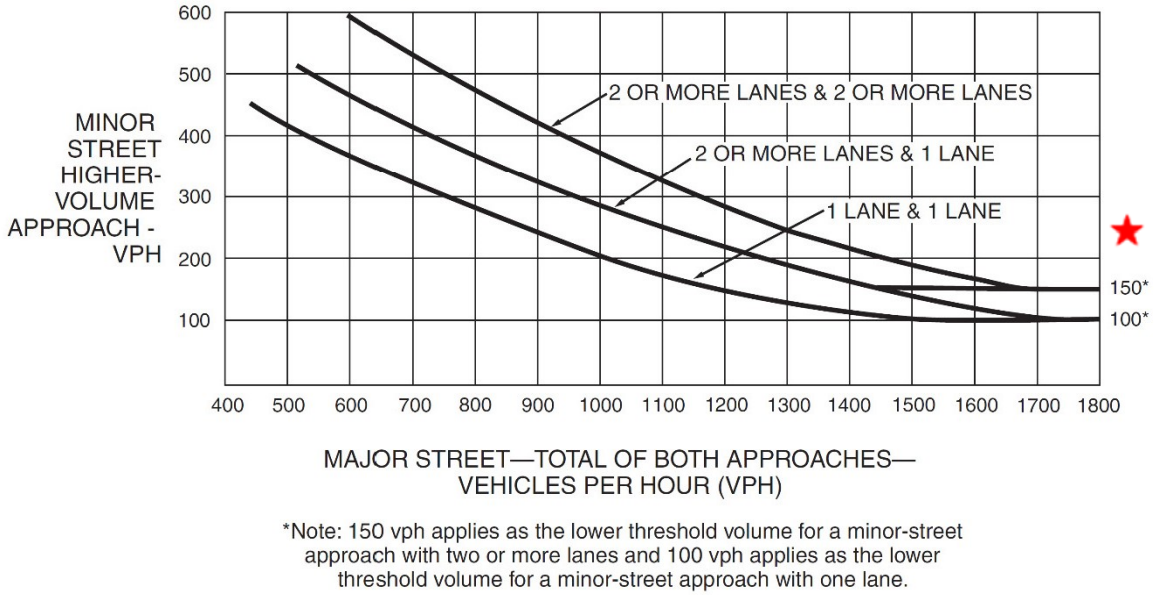
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Cumulative plus Project AM Peak Hour
Minor Street Approach - 229 vehicles
Major Street (Both Approaches) – 2,155 vehicles
Meets Warrant - Yes

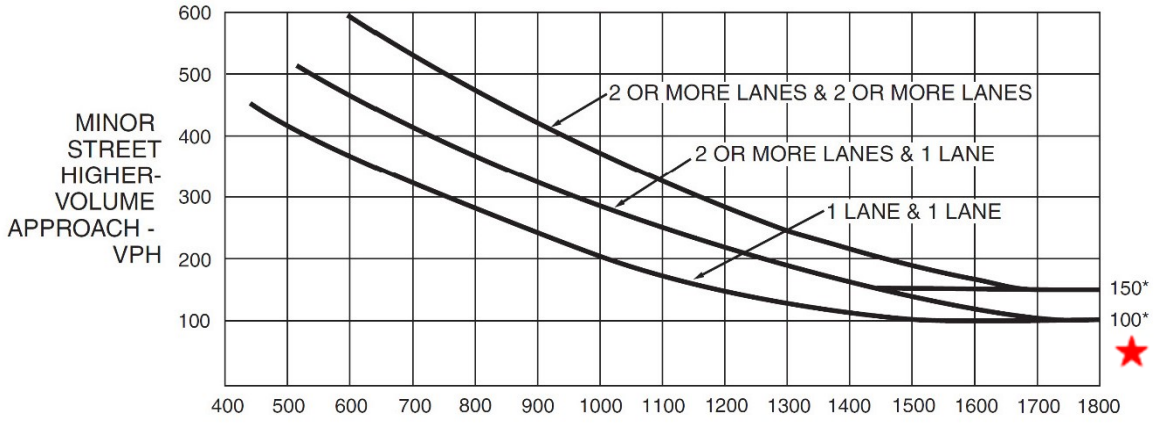
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Existing plus Project PM Peak Hour
Minor Street Approach - 52 vehicles
Major Street (Both Approaches) – 2,051 vehicles
Meets Warrant - No

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.