

AIR QUALITY ASSESSMENT

**Liberty High School
County of San Diego, CA**

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LIST OF ACRONYMS

Air Quality Impact Assessments (AQIA)
Assembly Bill 32 (AB32)
California Air Resource Board (CARB)
California Ambient Air Quality Standards (CAAQS)
California Environmental Quality Act (CEQA)
Carbon Dioxide (CO₂)
Cubic Yards (CY)
Diesel Particulate Matter (DPM)
Environmental Protection Agency (EPA)
EPA Office of Air Quality Planning and Standards (OAQPS)
Hazardous Air Pollutants (HAPs)
Hydrogen Sulfide (H₂S)
International Residential Code (IRC)
Level of Service (LOS)
Low Carbon Fuel Standard (LCFS)
Methane (CH₄)
National ambient air quality standards (NAAQS)
Nitrous Oxide (N₂O)
North County Transit District (NCTD)
Reactive Organic Gas (ROG)
Regional Air Quality Strategy (RAQS)
San Diego Air Basin (SDAB)
San Diego Air Pollution Control District (SDAPCD)
South Coast Air Quality Management District (SCAQMD)
Specific Plan Area (SPA)
State Implementation Plan (SIP)
Toxic Air Contaminants (TACs)
Vehicle Miles Traveled (VMT)

EXECUTIVE SUMMARY

This air quality impact study has been completed to determine the air quality impacts associated with the development of the proposed Liberty High School Development. The proposed Liberty High Project consists of the construction of a new Charter High School on an 7.7 acre parcel. The Project requests a Major Use Permit (MUP) to allow for the development of a 450 student high school (9th thru 12th grade). Classes will be held in a proposed 48,000 square foot, two-story building that will contain 22 classrooms and an administrative office.

The Project would also construct at least a 90-Kilowatt (KW) solar/photovoltaic (PV) system and will install low flow water fixtures within the development. Furthermore, the Project would install 2 Level II Electric Vehicle (EV) chargers or one dual port Level II EV charger within the common parking area of this Project.

All phases (i.e. grading, paving and construction) of the proposed Project are anticipated to start early 2020 with construction and full operations would be expected in the 2020-2021 school year. Based upon the analysis of construction and operation activities for the proposed Project, air emissions generated by the Project during construction and operations would result in less than significant impacts.

The proposed Project was found to generate significant health risks during construction with standard pre-tiered diesel equipment. As a mitigation measure, the proposed Project would utilize Tier 4 diesel equipment with diesel particulate filters (DPF). Based on this, diesel particulate matter from the Project was not found to increase cancer risks greater than 10 per million exposed and therefore would result in a less than significant health risk impact with the application of best available control technology for toxics (T-BACT).

A list of cumulative projects surrounding the proposed Project site was provided by the County of San Diego and after reviewing this list, it was determined that cumulative construction impacts would be less than significant since none of the cumulative projects would be close enough to cause cumulative construction impacts. Operationally, the Project would not generate any significant direct impacts as the proposed Project would not create a significant increase in regional trips due to the fact that the proposed Project would not increase regional habitation or student base. Given this, the Project would be consistent with both the Regional Air Quality Strategy (RAQS) and State Implementation Plan (SIP).

Finally, the Project would likely generate temporary construction odors from equipment and paving though these odors would be short term and would not be considered an impact. The proposed Project operations would be a high school and would not generate long term operational odors. Therefore, a less than significant impact would be expected.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Air Quality study is to determine potential air quality impacts (if any) that may be created by construction, area or operational emissions (short term or long term) from the proposed Project. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce these impacts to the extent feasible.

1.2 Project Location

The proposed development is located in the County of San Diego within the Community of Valle de Oro. The Project is located along the south side of Chase Avenue just West of Jamacha Road. Access to the Project site is provided along the south side of Chase Avenue with an entry only and exit only driveway 600 feet and 400 feet west of Jamacha Road, respectively.

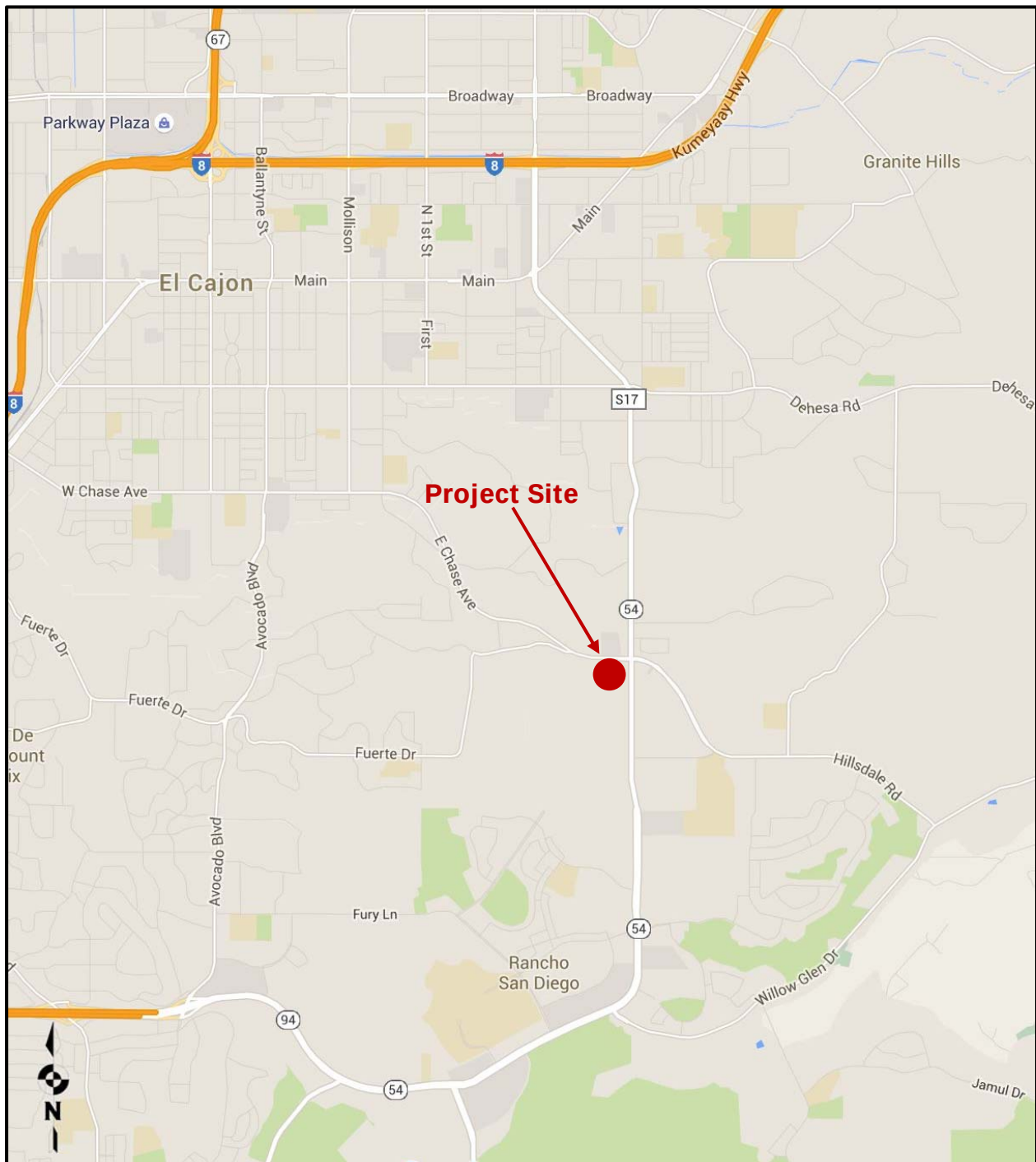
There are no structures located on the property except for a paved parking area in the northeast section of the site which will remain paved and is not considered part of this Project. Land uses surrounding the Project site include existing commercial and single family residential with Valhalla High School located approximately $\frac{3}{4}$ miles to the east of the property. A general Project vicinity map is shown in Figure 1–A on the following page.

1.3 Project Description

The proposed Liberty High Project consists of the construction of a new Charter High School on a 7.7 acre parcel. The Project requests a Major Use Permit (MUP) to allow for the development of a 450 student high school (9th thru 12th grades). Classes will be held in a proposed 48,000 square foot, two-story building that will contain 22 classrooms and an administrative office. A gymnasium will also be provided for school assemblies and sports events. The school is expected to hire roughly 33 faculty and staff.

The Project also includes parking areas with up to 161 spaces along with a designated student drop off and pick up route. The school will operate during a normal school year calendar (August through June) and during the hours of 8:00 am to 3:30 pm Mondays through Fridays with additional hours for after school activities. The Project site plan is shown in Figure 1-B.

Figure 1-A: Project Vicinity Map



Source: (Google, 2019)

1568-20 Liberty High Air Quality Study



1.4 Project Design Features

Project design features have been incorporated into the Project to reduce emissions associated with operations of this Project. This report will define specifically which design features were included within air quality estimation software and it should be expected that whenever a design feature is included within air quality modeling that those particular design features would be required for the Project to implement such that the County can recommend approval. If mitigation measures are required for compliance, they will be identified later in this analysis. A list of design features included within the air quality analysis are shown below:

- The Project will install at least a 90-Kilowatt (KW) solar/photovoltaic (PV) system.
- The Project would install low flow water fixtures within the development

The Project will also install design features expected to reduce Project operational air quality emissions though are not quantified within this report. It should be noted that these design features are for informational purposes only and since modeling results would not be dependent on installation of these design features, they were not incorporated in this air quality analysis.

- Plumb and install 2 Level II Electric Vehicle (EV) chargers or one dual port Level II EV charger within the common parking area of this Project.

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The currently vacant site is rectangular in shape with approximately 800 feet of frontage along Chase Avenue and a relatively narrow appendage in the northeast portion of the site that extends to the intersection of Chase Avenue and Jamacha Road. The Project site has a General Plan Designation of Semi-Rural Residential (SR-0.5) with a Regional Category of Semi-Rural. The zoning of the site is Rural Residential (RR) with a minimum lot size of 0.5 acres.

There are no structures or improvements located on the property with the exception of a paved parking area located in the northeastern portion of the site. This portion of the site is under lease to the adjacent commercial shopping center and will not be modified as part of this Project.

Land uses immediately surrounding the Project site include existing commercial shopping centers to the immediate east and northeast or adjacent to the Project. Also, adjacent to the Project is a vacant commercial nursery to the north. Single-family homes are located to the northwest, west and south of the site and are all adjacent to the Project site. Valhalla High School is located approximately 0.75 miles to the east of the property on Hillsdale Road.

2.2 Climate and Meteorology

Climate within the San Diego Air Basin (SDAB), is largely dominated by the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the West Coast often creates a pattern of late-night and early-morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation throughout the year. The climatic classification for San Diego is a warm with dry summers and mild wet winters (County of San Diego, 2007).

Meteorological trends within the El Cajon area generally show daytime highs ranging between 67 degrees Fahrenheit (°F) in the winter to approximately 85°F in the summer with August usually being the hottest month. Median temperatures range from approximately 55°F in the winter to approximately 73°F in the summer. Precipitation is generally about 12.9 inches per year (WRCC, 2016). Prevailing wind patterns for the area vary during any given month during the year and also vary depending on the time of day or night. The predominant pattern though throughout the year is usually from the west or westerly (WRCC, 2018).

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. **Primary Standards** set limits for the intention of protecting public health, which includes sensitive populations such as asthmatics, children and elderly. **Secondary Standards** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The United States (U.S.) Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. **Carbon Monoxide (CO):** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. **Lead (Pb):** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. **Nitrogen Dioxide (NO₂):** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO₂ is usually visible as a reddish-brown air layer over urban areas. NO₂ along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO₂ above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO₂ exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.*
4. **Particulate Matter (PM₁₀ or PM_{2.5}):** *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 in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (μm) or less and $PM_{2.5}$ particles are 2.5 (μm) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.

5. **Ozone (O_3):** is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.
6. **Sulfur Dioxide (SO_2):** is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.

2.3.2 State Standards and Definitions

The State of California Air Resources Board (CARB) sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) also restrict four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. **Visibility Reducing Particles:** Particles in the Air that obstruct the visibility.
2. **Sulfates:** are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.
3. **Hydrogen Sulfide (H_2S):** is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 ppm) can cause a loss of consciousness and possibly death.
4. **Vinyl Chloride:** also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Average Time	California Standards ¹		Federal Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃) ⁸	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁹	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		-		
Fine Particulate Matter (PM _{2.5}) ⁹	24 Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12.0 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		-	-	-
Nitrogen Dioxide (NO ₂) ¹⁰	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³) ⁸	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m ³)		0.100 ppm ⁸ (188/ µg/m ³)	-	
Sulfur Dioxide (SO ₂) ¹¹	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm ¹⁰ (for Certain Areas)	-	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method) ⁹
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm ¹⁰ (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m ³)	
	1 Hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³)	-	
	30 Day Average	1.5 µg/m ³		-	-	
Lead ^{12,13}	Calendar Quarter	-	Atomic Absorption	1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m ³		
	Visibility Reducing Particles	8 Hour		See footnote 14		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹²	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equal to 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 ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone 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 PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, 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. Contact the U.S. EPA for further clarification and current national policies.

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

4. Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

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

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3 . The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3 , as was the annual secondary standard of 15 µg/m3 . The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

12. The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: (CARB, 5/4/2016)

The California Air Resource Board (CARB) reported that air pollution studies have indicated that living close to or attending school near high traffic areas and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. These studies indicated an association between adverse non-cancer health effects and living or attending school near heavily traveled roadways and can include respiratory symptoms, asthma exacerbations, and decreases in lung function in children. The key requirements for these sources are to avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day (CAPCOA, 2009).

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. California Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as “non-attainment areas” for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the PM_{2.5} standard and many areas are in non-attainment for PM₁₀ as well. The state therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed for California Air basins to attain ambient air quality standards.

The San Diego Air Pollution Control District (SDAPCD) is the government agency which regulates sources of air pollution within County. Therefore, the SDAPCD developed a Regional Air Quality Strategy (RAQS) to provide control measures to try to achieve attainment status for state ozone standards with control measures focused on Volatile Organic Compounds (VOCs) and oxides of nitrogen (NO_x). Currently, San Diego is in “non-attainment” status for federal and state O₃ and State PM₁₀, PM_{2.5}. An attainment plan is available for O₃. The RAQS was adopted in 1992 and has been updated as recently as 2016 which was the latest update incorporating minor changes to the prior 2009 update.

The 2016 update mostly summarizes how the 2009 update has lowered NO_x and VOCs emissions which reduces ozone and clarifies and enhances emission reductions by introducing for discussion three new VOC and four new NO_x reduction measures. NO_x and VOCs are Ozone precursors and react organically to form Ozone. The criteria pollutant standards are generally attained when each monitor within the region has had no exceedances during the previous three calendar years. A complete listing of the current attainment status with respect to both federal and state nonattainment status by pollutants for San Diego County is shown in Table 2.2 on the following page (SDAPCD, 2019).

The RAQS is largely based on population predictions by the San Diego Association of Governments (SANDAG). Projects that produce less growth than predicted by SANDAG would generally conform to the RAQS. Projects that create more growth than projected by SANDAG may create a significant impact if the project produces unmitigable air quality emissions or if the project produces cumulative impacts.

Table 2.2: San Diego County Air Basin Attainment Status by Pollutant

San Diego County Air Basin Attainment Status by Pollutant		
Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Nonattainment	Nonattainment
Ozone (1-Hour)	Attainment *	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM10	Unclassifiable **	Nonattainment
PM2.5	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified
* The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans. ** At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.		

2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

- A:* Conflict with or obstruct implementation of the RAQS or applicable portions of the SIP?

- B:* Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- C:* Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard (PM₁₀, PM_{2.5} or exceed quantitative thresholds for O₃ precursors, NO_x and VOCs)?
- D:* Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?
- E:* Create objectionable odors affecting a substantial number of people?

2.5 SDAPCD Rule 20.2 – Air Quality Impact Assessment Screening Thresholds

The SDAPCD has established thresholds in Rule 20.2 for new or modified stationary sources. The County's Guidelines for Determining Significance and Report Format and Content Requirements incorporate screening level thresholds from Rule 20.2 for use in all County related Air Quality Impact Assessments (AQIA) and for determining CEQA air quality impacts (County of San Diego, 2007). These screening criteria can be used to demonstrate that a project's total emissions would not result in a significant impact as defined by CEQA. Also, since SDAPCD does not have AQIA threshold for VOCs, it is acceptable to use the Coachella Valley VOC threshold from South Coast Air Quality Management District. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the project's total air quality impacts are below the state and federal ambient air quality standards. These screening thresholds for construction and daily operations are shown in Table 2.3 on the following page.

Non Criteria pollutants such as Hazardous Air Pollutants (HAPs) or Toxic Air Contaminants (TACs) are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review) adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires that projects that propose to increase cancer risk to between 1 and 10 in one million need to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall the project increase the incremental cancer risk to over 10 in one million or a health hazard index (chronic and acute) greater than one. Projects creating cancer risks less than one in one million are not required to implement T-BACT technology.

The U.S. Environmental Protection Agency (U.S. EPA) uses the term Volatile Organic Compounds (VOC) and the California Air Resources Board's (CARB's) Emission Inventory Branch (EIB) uses the term Reactive Organic Gases (ROG) to essentially define the same thing. There are minor deviations between compounds that define each term however for

purposes of this study we will assume they are essentially the same due to the fact SCAQMD interchanges these words and because Air Quality models directly calculates ROG in place of VOC.

Table 2.3: Screening Level Thresholds for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Respirable Particulate Matter (PM ₁₀ and PM _{2.5})	100 and 55
Nitrogen Oxide (NO _x)	250
Sulfur Oxide (SO _x)	250
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Operational Emissions	
Respirable Particulate Matter (PM ₁₀ and PM _{2.5})	100 and 55
Nitrogen Oxide (NO _x)	250
Sulfur Oxide (SO _x)	250
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2
Volatile Organic Compounds (VOCs)	75

2.6 Local Air Quality

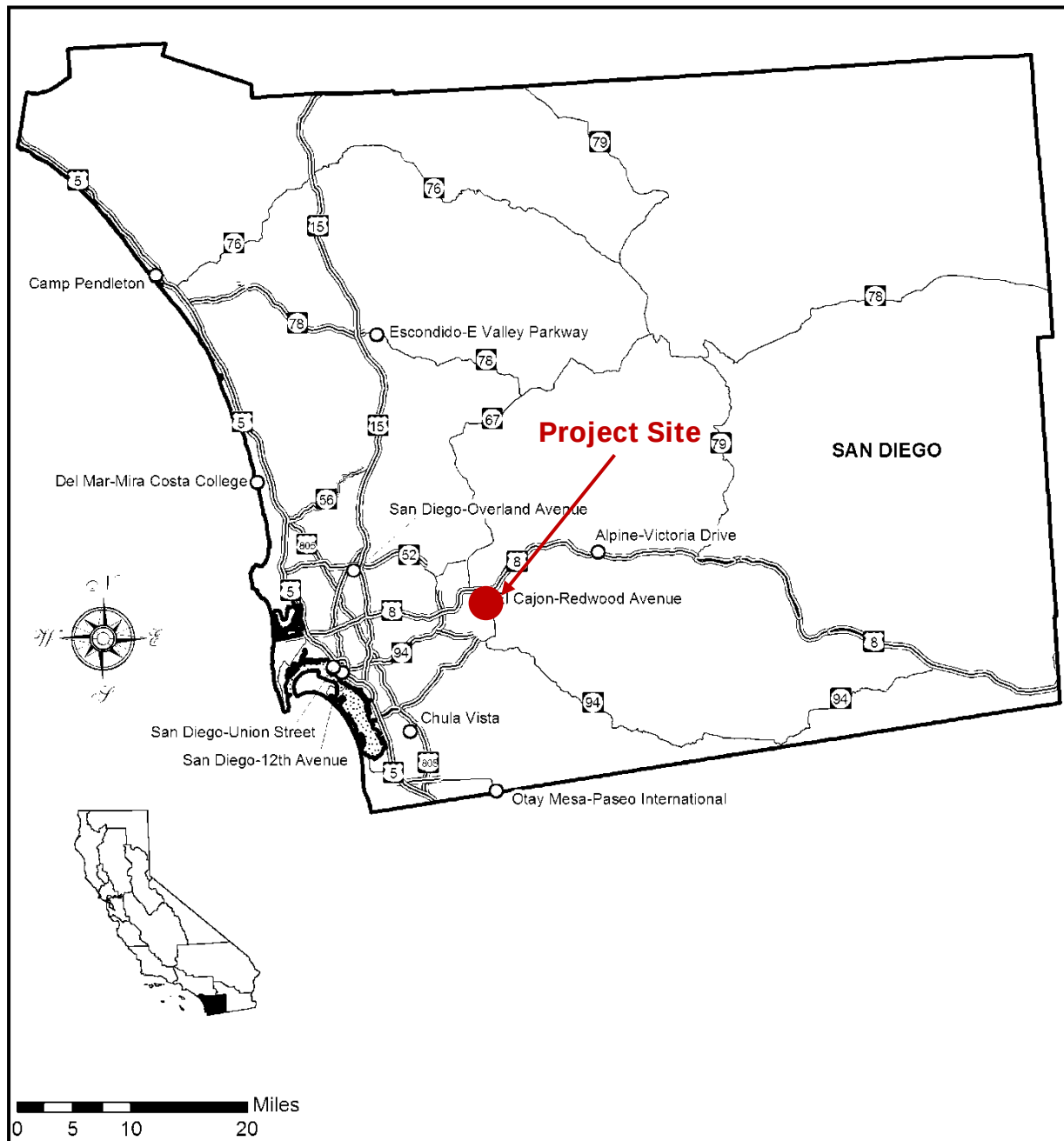
Criteria pollutants are measured continuously throughout the San Diego Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The SDAPCD is responsible for monitoring and reporting air quality data collected for criteria air pollutants at the 11 monitoring sites located throughout the County. The proposed Project is closest to the El Cajon Monitoring station which is located approximately 1.8 miles to the northwest from the Project site. Table 2.4 identifies the criteria pollutants monitored at the aforementioned station.

Four additional sites collect meteorological data which is used by the District to assist with pollutant forecasting, data analysis and characterization of pollutant transport. Figure 2-A below shows the relative locations of the monitoring sites. SDAPCD published the five-year air quality summary for all of the monitoring stations within the following link (SDAPCD, 2019).

Table 2.4: Three-Year Ambient Air Quality Summary near the Project Site

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2015	2016	2017	2017 Days Exceeded
O ₃ (ppm)	El Cajon- Redwood Avenue	1 Hour	0.09 ppm	No Standard	0.08	0.10	0.0	1
		8 Hour	0.070 ppm	0.070 ppm	0.07	0.08	0.08	9
PM ₁₀ (µg/m3)		24 Hour	50 µg/m3	150 µg/m3	48	43	50	N/A
		Annual Arithmetic Mean	20 µg/m3	No Standard	21.9	22.6	22.5	N/A
PM _{2.5} (µg/m ³)		24 Hour	No Standard	35 µg/m3	24.7	23.9	31.8	N/A
		Annual Arithmetic Mean	12 µg/m3	12 µg/m3	8.2	9.3	9.5	N/A
NO ₂ (ppm)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.010	0.009	0.010	N/A
		1 Hour	0.18 ppm	0.10 ppm	0.059	0.057	0.045	N/A
CO (ppm)		1 Hour	20 ppm	35 ppm	1.4	1.7	1.5	N/A
		8 Hour	9 ppm	9 ppm	1.1	1.3	1.4	N/A
N/A - Indicates Not Applicable								

Figure 2-A: Ambient Air Quality Monitoring Stations within SDAB – CARB



3.0 METHODOLOGY

3.1 Construction Emissions Calculations

Air Quality impacts related to construction and daily operations were calculated using the latest CalEEMod 2016.3.2 air quality model, which was developed by BREEZE Software for South Coast Air Quality Management District (SCAQMD) in 2017. The construction module in CalEEMod is used to calculate the emissions associated with the construction of the Project and uses methodologies presented in the U.S. EPA AP-42 document with emphasis on Chapter 11.9. The CalEEMod input/output model is shown in **Attachment A** to this report.

The AERMOD dispersion model will be used to determine the concentration for air pollutants at any location near the pollutant generator. Additionally, the model will predict the maximum exposure distance and concentrations. The notable toxic air contaminant from construction is diesel exhaust since exposure to diesel exhaust is known to cause cancer and acute and chronic health effects. Diesel exhaust emissions can be estimated using the annual PM₁₀ exhaust emissions from onsite construction operations obtained from the annual CalEEMod model output by summing each onsite source for the construction duration. The AERMOD input/output file for the proposed Project is shown in **Attachments B and -C** at the end of this report for both unmitigated and mitigated scenarios, described in Sections 4.1 and 4.2 of this report.

Once the dispersed concentrations of diesel particulates are estimated in the surrounding air, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the dose in milligrams per kilogram body weight per day (mg/kg/d). For residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. The following algorithms calculate this dose for exposure through the inhalation pathways. The worst-case cancer risk dose calculation is defined in Equation 1 below (OEHHA, February 2015):

$$\text{Equation 1} \quad Dose_{air} = C_{air} * (BR/BW) * A * EF * (1 \times 10^{-6})$$

Dose _{air}	=	Dose through inhalation (mg/kg/d)
C _{air}	=	Concentration in air (µg/m ³) Annual average DPM concentration in µg/m ³ – 1-hr concentration are corrected to an annual average by multiplying the 1-hr average by 0.08 (US EPA, 1992)
BR/BW	=	Daily breathing rate normalized to body weight (L/kg BW-day). See Table I.2 for the daily breathing rate for each age range.
A	=	Inhalation absorption factor (assumed to be 1)
EF	=	Exposure frequency (unitless, days/365 days)
1x10 ⁻⁶	=	Milligrams to micrograms conversion (10 ⁻³ mg/ µg), cubic meters to liters conversion (10 ⁻³ m ³ /l)

Cancer risk is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home and the exposure duration divided by averaging time, to yield the excess cancer risk. As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk for any given location. Specific factors as modeled are shown within **Attachment D** to this report. The worst-case cancer risk calculation is defined in Equation 2 below (OEHHA, February 2015):

Equation 2 $RISK_{inh-res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$

$RISK_{inh-res}$	=	Residential inhalation cancer risk
$DOSE_{air}$	=	Daily inhalation dose (mg/kg-day)
CPF	=	Inhalation cancer potency factor (mg/kg-day ⁻¹)
ASF	=	Age sensitivity factor for a specified age group (unitless)
ED	=	Exposure duration (in years) for a specified age group
AT	=	Averaging time for lifetime cancer risk (years)
FAH	=	Fraction of time spent at home (unitless)

The California Office of Environmental Health Hazard Assessment (OEHHA) recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the Maximally Exposed Individual Resident (MEIR). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans.

Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods. If a facility is notifying the public regarding cancer risk, the 9-and 70-year cancer risk estimates are useful for people who have resided in their current residence for periods shorter and longer than 30 years.

Non-Cancer risks or risks defined as chronic or acute. With respect to Diesel Particulate Matter (DPM) only chronic risks are calculated and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the OEHHA (OEHHA, February 2015). Diesel Exhaust has a REL of 5 µg/m³ and targets the respiratory system.

A graphical representation of the modeling locations is shown on a site aerial below in Figure 3-A. The red points (1-6) represent the sensitive residential receptor locations where air quality emissions are calculated by AERMOD. The green polygon represents the expended grading area. For purposes of analysis an unmitigated and mitigated model was created.

Figure 3-A: Construction Health Risk Model Setup



3.2 Construction Assumptions

The Construction of the proposed Project would take roughly one year to complete. Table 3.1 shows the expected timeframes and would include site preparation, grading which would include all necessary trenching and infrastructure improvements, paving, and building construction of all the facilities at the proposed Project location. All equipment was selected based on default settings within CalEEMod. Per discussions with the Project applicant, the equipment selected and the durations were determined to be accurate for this Project.

Table 3.1: Expected Construction Equipment and Schedule

Equipment Identification	Proposed Dates	Quantity
Site Preparation	1/1/2020– 1/14/2020	
Rubber Tired Dozers		3
Tractors/Loaders/Backhoes		4
Grading	1/15/2020 – 2/28/2020	
Excavators		1
Graders		1
Rubber Tired Dozers		1
Tractors/Loaders/Backhoes		3
Paving	3/1/2020– 3/20/2020	
Pavers		2
Paving Equipment		2
Rollers		2
Building Construction	3/22/2020 – 12/30/2020	
Cranes		1
Forklifts		3
Generator Sets		1
Tractors/Loaders/Backhoes		3
Welders		1
Architectural Coating	5/1/2020 – 12/31/2020	
Air Compressors		1
This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions from Projects of similar size and scope in the County of San Diego.		

3.3 Operational Emissions

Once construction is completed the proposed Project would generate emissions from daily operations which would include sources such as Area, Energy, Mobile, Waste and Water uses, which are also calculated within CalEEMod. Area Sources include consumer products, landscaping, and architectural coatings as part of regular maintenance. Energy sources would be from uses such as onsite natural gas use. Water and solid waste sources are from onsite water consumption, and wastewater and solid waste generation. Finally, mobile or

transportation related emissions are generated through vehicle trips to and from the site and are calculated in CalEEMod through the use of EMFAC2011. The Operational model is also shown in **Attachment A** at the end of this report.

The Project would implement design features to include low flow water fixtures and at least 90 KW PV system. For purposes of analysis, CalEEMod was updated to include low flow fixtures for the water and wastewater calculations internal to CalEEMod. For reductions associated with the PV design feature, annual energy estimates were provided by the National Renewable Energy Laboratory (NREL, 2019) and shown as **Attachment E** to this report.

The Project traffic engineer estimated that there will be 854 daily trips which were broken down within the Project traffic study (Kimley Horn, 2018). These traffic numbers were utilized within the CalEEMod analysis. The model also estimates emission predictions for VOC, NOx, CO, SO₂, PM₁₀ and PM_{2.5} for area source assumptions. Additionally, it was assumed that an average of 10% of the structural surface area will be re-painted each year which is default within CalEEMod.

3.4 Micro Scale CO Operational Emissions

Air pollutant emissions related to Project traffic have the potential to create new, or worsen existing localized air quality violations with respect to CO. These increased CO "Hot Spots" are determined through the utilization of the Institute of Transportation Studies (ITS) Transportation Project-Level Carbon Monoxide Protocol (University of California, Davis for California Department of Transportation, 1997).

In the event the proposed Project traffic adds vehicular trips to either an intersection that operates at Level of Service (LOS) E or F or any intersection where the Project trips re-classify the intersection level of service from a lower LOS to LOS E or F and when peak-hour trips exceed 3,000 the Project must quantify CO levels (County of San Diego, 2007).

Based on the Project traffic study the proposed Project will not add vehicular trips to intersections already operating at LOS E or F or cumulatively cause existing intersections within the Project study area to operate at LOS E or F and would therefore not require micro-scale CO "hot spot" analysis in this report.

3.5 Odor Impacts (Onsite)

Potential onsite odor generators would include short term construction odors from activities such as paving and possibly painting. Odors created during short term construction activities would most likely be from placing asphalt which has a slight odor from the bitumen and

solvents used within hot asphalt. Asphalt application is fairly quick and is not expected to cause significant long-term odor impacts. Therefore, no significant construction odor impacts would be expected. Long term impacts would not be expected since operation of a school is not considered a significant odor generator. Given this, further discussion of onsite odor impacts would not be necessary in this report and a less than significant odor impact (Both short term and long term) is expected.

4.0 FINDINGS

4.1 Construction Findings

Construction emissions from the construction activities and equipment identified in Section 3.2 above is shown in Table 4.1. Based on these numbers, the Project would not exceed SDAPCD Rule 20.2 standards and would not require mitigation to comply. Additionally, this Project would follow SDAPCD Rule 67 paint VOC limits which were included within the CalEEMod analysis.

Table 4.1: Unmitigated Construction Emissions Summary –Pounds per Day

Year	VOC	NO _x	CO	SO ₂	PM ₁₀ (Dust)	PM ₁₀ (Exhaust)	PM ₁₀ (Total)	PM _{2.5} (Dust)	PM _{2.5} (Exhaust)	PM _{2.5} (Total)
2020	5.702	42.462	22.024	0.040	18.214	2.199	20.413	9.970	2.023	11.993
Significance Threshold	75	250	550	250	-	-	100	-	-	55
SDAPCD Impact?	No	No	No	No	-	-	No	-	-	No

4.2 Health Risk

Based upon the annual air quality modeling results attached to this report, worst-case unmitigated PM₁₀ from exhaust emissions would cumulatively produce 0.1495 tons (over the construction duration of 365 days) or an average of 0.0043 grams/second. The average emission rate over the grading area is 1.38×10^{-7} g/m²/s, which was calculated as follows:

$$\frac{0.0043 \frac{\text{grams}}{\text{second}}}{7.7 \text{ acres} * 4,046 \frac{\text{meters}^2}{\text{acre}}} = 1.38 * 10^{-7} \frac{\text{grams}}{\text{meters}^2 \text{ second}}$$

Utilizing the AERMOD dispersion model, we find that the annual concentration is 1.39 µg/m³ during construction. Utilizing the risk equation identified above in Section 3.1, the inhalation cancer risk for the closest residential receptor was found to be 307.78 which would exceed the 10 per one million exposed significance threshold which would be a significant impact.

It was found that these impacts can be reduced to less than significant through the utilization of Tier 4 equipment with diesel particulate filtration, which are considered T-BACT. It was found that Tier 4 equipment would cumulatively produce 0.00081 tons of PM₁₀ over the same construction duration above or 0.000023 grams/second. Based on this the mitigated average

emission rate over the grading area is 7.47×10^{-10} g/m²/s. Utilizing the AERMOD dispersion model, we find that the annual concentration is 0.00752 µg/m³ during construction. Given this, the inhalation cancer risk for the closest residential receptor was found to be 1.67 per one million exposed which would be considered a less than significant impact with the application of T-BACT. Detailed calculations for both the unmitigated and mitigated scenario are shown in **Attachment D** to this report.

Finally, there are known chronic health risks associated with diesel exhaust which are considered non-cancer risks. These risks are calculated based on methods identified in Section 3.1 of this report. From this we find that the annual concentration of 0.00752 µg/m³ divided by the REL of 5 µg/m³ yields a Health Hazard Index of 0.0015, which is less than one. Therefore, no chronic health risks are expected and all health risks are considered less than significant.

It should be noted that the mitigation measure to utilize Tier 4 equipment with DPF would further reduce Air Quality emissions identified in Section 4.1 above, which are considered to produce the least amount of DPM and NO_x emissions on the market today (U.S. EPA, 2018). Table 4.2 below shows mitigated construction air quality emissions which are also less than significant.

Table 4.2: Mitigated Construction Emissions Summary – Daily Pounds per Day

Year	ROG	NO _x	CO	SO ₂	PM ₁₀ (Dust)	PM ₁₀ (Exhaust)	PM ₁₀ (Total)	PM _{2.5} (Dust)	PM _{2.5} (Exhaust)	PM _{2.5} (Total)
2020	3.889	4.618	21.379	0.040	18.214	0.021	18.225	9.970	0.020	9.980
Significance Threshold (lb/day)	75	250	550	250	-	-	100	-	-	55
SDAPCD Impact?	No	No	No	No	-	-	No	-	-	No

The school is located near Jamacha Road which has a design capacity of 37,000 ADT and is projected to have 27,570 ADT once the Project is operational which can be seen in Table 5-1 in the Project traffic study (Kimley Horn, 2018). CARB set an advisory recommend screening level of 50,000 ADT for rural roads and 100,000 urban roads as a point at which you should not site schools within 500 feet of the roadway (CARB, 2005). The Project would be situated near Jamacha Road which is considered a rural road, and experiences existing traffic volumes less than 50,000 ADT. Since the existing roadway volumes would not exceed the 50,000 ADT screening level, the Project setting and relative location to Jamacha Road would be adequate based on CARB recommendations.

4.3 Operational Findings

Project Buildout is expected in the 2020-2021 school year. The Project traffic generation of 854 daily trips during the school year was used within this analysis along with average urban trip distances as estimated by CalEEMod 2016.3.2. It should be noted that the default settings in CalEEMod is 1.7 trips per student though this was increased to 1.9 manually to be consistent with the Project traffic study. Additionally, CalEEMod was run for the winter and summer scenarios to fully determine operational impacts throughout any given year.

The expected daily pollutant generation can be calculated utilizing the product of the average daily vehicle miles traveled and the expected emissions inventory calculated by EMFAC2014; CALEEMOD 2016.3.2 performs this calculation. The daily pollutants calculated for summer and winter are shown in Table 4.2.

Table 4.2: Expected Daily Pollutant Generation

	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Summer Scenario (lb/day)						
Area	1.470	0.001	0.063	0.000	0.000	0.000
Energy	0.010	0.095	0.080	0.001	0.007	0.007
Mobile	1.461	5.885	16.693	0.057	4.793	1.312
Total (Unmitigated)	2.942	5.980	16.835	0.057	4.800	1.319
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	No	No	No	No	No	No
Winter Scenario (lb/day)						
Area	1.470	0.001	0.063	0.000	0.000	0.000
Energy	0.010	0.095	0.080	0.001	0.007	0.007
Mobile	1.418	6.048	16.464	0.054	4.793	1.312
Total (Unmitigated)	2.899	6.143	16.606	0.054	4.801	1.320
SDAPCD Thresholds	75	250	550	250	100	55
Significant?	No	No	No	No	No	No
Daily pollutant generation assumes trip distances within CalEEMod The final numbers are all rounded within Excel and are reported as rounded numbers.						

Based upon these calculations, the proposed Project would not exceed SDAPCD operational air quality significance thresholds and would not be required to implement mitigation measures to comply with CEQA and SDAPCD thresholds.

4.4 Cumulative Impact Findings

Cumulative impacts would potentially occur when either there are direct air quality impacts or when multiple construction projects occur within the same area simultaneously. To illustrate this, if a project was to produce air quality emissions simultaneous to a nearby construction project the addition of both project's emissions to the environment could exceed significance thresholds. If a nearby project was to be under construction at the same time, that project would need to produce an additive amount of emissions close to the Project site such that emissions would exceed thresholds. The County of San Diego provided a list of cumulative projects (Table 4.3 below) which is in the general vicinity of the proposed Project. Based on review of the projects however, the closest projects to the site is Drysdale's Boulder and Landscape, St Gregory of Nyssa Major Use Permit (MUP) project and the Winchester Ranch project. The three projects are located within 715 feet of the proposed project. The status of these projects is unknown; however, to avoid any potential cumulative impacts with these project, simultaneous grading should be avoided. Prior to the County issuing grading permits, the Liberty High development shall coordinate with the County of San Diego to ensure simulations grading does not occur.

Table 4.3: Cumulative Project List

Project Name	Project Number	Distance from the Site (Feet)
St. Gregory of Nyssa Major Use Permit	PDS2005-3300-05-010	715
Winchester Ranch Tentative Map	PDS2010-3100-4416	715
Brayton Way Tentative Parcel Map	PDS2005-3200-20918	1600
Law Tentative Parcel Map	PDS2006-3200-20991	1280
Drysdale's Boulder and Landscape	PDS2003-3300-03-060	200
Avocado Ranch Road Tentative Parcel Map	PDS2017-TPM-21253	1840
Dawson Subdivision Tentative Map	PDS2000-3100-5157	5440
Lynn Lot Split Tentative Parcel Map	PDS2016-TPM-21236	4844

It was found that construction activities would result in significant health risk impacts at the adjacent sensitive receptors that would be reduced to a less than significant level through the incorporation of Tier 4 diesel equipment with DPF attached. Since impacts at these closest receptors were determined to be less than significant with mitigation, and due to the dispersive nature of diesel particulate, impacts at further locations would also be considered less than significant with mitigation.

The existing land use is rural residential which would generate up to 100 trips per day if it was developed at one residential unit per acre. It should be noted however that the proposed

Project would be considered “an allowed use” onsite based on the underlying zoning. As proposed, the Project would generate 854 trips per day or 754 more trips per day than if the site was used for rural residential only. Given this, the estimated Project trip generation would be more intense than would have been assumed within the County’s General Plan for the Project site.

The Project traffic study was reviewed and it was determined that the Project would not add any trips to any intersection with LOS E or F designations or cause any intersections to be reclassified to LOS E or F with over 3,000 peak hour trips.

Liberty Charter High School is the 9-12th grade program that serves the families that have enrolled their students in Literacy First Charter Schools. The large majority of those students live in the East County of San Diego. The proposed school campus near the corner of Chase Avenue and Jamacha Boulevard will replace the current campus, temporarily located in Lemon Grove. The relocated High School would be in closer proximity to the students currently attending the elementary and middle schools that would feed into this high school. The Project applicant had a memo prepared by the Project traffic engineer and the analysis states that the relocation of the High School site would result in a reduction to school related vehicle miles traveled (VMT) based on the existing population of middle and elementary school students that would be likely to attend the high school in future years. This memo has been provided as **Attachment F** to this report. As a result of the regional VMT reduction that would occur through the Project’s development, the Project would be not be inconsistent with the VMT projections provided in the RAQS and SIP.

Based on this analysis, the Project’s cumulative air quality impacts from construction and operational activities would be less than significant.

4.5 Conclusion of Findings

Based upon the analysis of construction and operation activities for the proposed Project, the Project would generate less than significant emissions of criteria pollutants during construction and operational activities.

The proposed Project was found to generate significant health risks during construction with standard diesel equipment. As a mitigation measure, the proposed Project would utilize Tier 4 diesel equipment with DPF, considered T-BACT. Based on this, diesel particulate matter from the Project was not found to increase cancer risks greater than 10 per one million exposed with the application of T-BACT and would therefore generate less than significant health risk impacts.

Prior to the beginning of Project construction, the Project would coordinate with County staff to ensure grading would not occur simultaneously as grading phases of nearby cumulative projects. Therefore, the proposed Project would generate less than significant cumulative construction impacts. Operationally, the Project would generate less than significant direct impact. Cumulatively, the Project would decrease regional trips since the school is moving closer to the majority of the students. Given this, the Project would be consistent with the RAQS and SIP.

Finally, the Project would likely generate temporary construction odors from equipment and paving though these odors would be short term and would not be considered a significant impact. Long term odor impacts would not be expected from this Project since the proposed Project operations would be a high school which would not generate significant odor impacts. Given this, a less than significant operational odor impact is expected.

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6.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed Liberty High School development. This report was prepared utilizing the latest emission rates and reduction methodologies. This report was prepared by Jeremy Loudon; a County approved CEQA Consultant for Air Quality.



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Date November 22, 2019

ATTACHMENT A

CALEEMOD 2016.3.2

Liberty HS - San Diego County, Summer

Liberty HS

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	450.00	Student	6.25	59,697.44	0
Parking Lot	161.00	Space	1.45	64,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MW hr)	525.68	CH4 Intensity (lb/MW hr)	0.021	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Liberty HS - San Diego County, Summer

Project Characteristics - 2021 RPS

Land Use - Site is 7.7 Acres

Construction Phase - CS

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - ce

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT -

Grading -

Architectural Coating - rule 67 paint

Vehicle Trips - 854 per traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - rule 67 compliant paint

Energy Use -

Construction Off-road Equipment Mitigation - Tier III Required

Energy Mitigation - Per PV Watts 90KW system generates 149,002 kWh

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00

Liberty HS - San Diego County, Summer

tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Liberty HS - San Diego County, Summer

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	230.00	203.00
tblConstructionPhase	NumDays	20.00	175.00
tblLandUse	LotAcreage	1.37	6.25
tblOffRoadEquipment	UsageHours	7.00	3.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.021
tblProjectCharacteristics	CO2IntensityFactor	720.49	525.68
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	WD_TR	1.71	1.90

2.0 Emissions Summary

Liberty HS - San Diego County, Summer

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	5.7022	42.4618	22.0239	0.0395	18.2141	2.1985	20.4126	9.9699	2.0226	11.9925	0.0000	3,836.796 0	3,836.796 0	1.1964	0.0000	3,866.705 2
Maximum	5.7022	42.4618	22.0239	0.0395	18.2141	2.1985	20.4126	9.9699	2.0226	11.9925	0.0000	3,836.796 0	3,836.796 0	1.1964	0.0000	3,866.705 2

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	3.8890	4.6183	21.3792	0.0395	18.2141	0.0206	18.2245	9.9699	0.0199	9.9802	0.0000	3,836.796 0	3,836.796 0	1.1964	0.0000	3,866.705 2
Maximum	3.8890	4.6183	21.3792	0.0395	18.2141	0.0206	18.2245	9.9699	0.0199	9.9802	0.0000	3,836.796 0	3,836.796 0	1.1964	0.0000	3,866.705 2

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	31.80	89.12	2.93	0.00	0.00	99.06	10.72	0.00	99.02	16.78	0.00	0.00	0.00	0.00	0.00	0.00

Liberty HS - San Diego County, Summer

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	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Energy	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
Mobile	1.4610	5.8849	16.6930	0.0568	4.7467	0.0463	4.7930	1.2687	0.0433	1.3119		5,764.5273	5,764.5273	0.2983		5,771.9845
Total	2.9415	5.9804	16.8353	0.0573	4.7467	0.0538	4.8004	1.2687	0.0507	1.3194		5,878.5720	5,878.5720	0.3008	2.0900e-003	5,886.7150

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	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Energy	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
Mobile	1.4610	5.8849	16.6930	0.0568	4.7467	0.0463	4.7930	1.2687	0.0433	1.3119		5,764.5273	5,764.5273	0.2983		5,771.9845
Total	2.9415	5.9804	16.8353	0.0573	4.7467	0.0538	4.8004	1.2687	0.0507	1.3194		5,878.5720	5,878.5720	0.3008	2.0900e-003	5,886.7150

Liberty HS - San Diego County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	1/14/2020	5	10	
2	Grading	Grading	1/15/2020	2/28/2020	5	33	
3	Paving	Paving	3/1/2020	3/20/2020	5	15	
4	Building Construction	Building Construction	3/22/2020	12/30/2020	5	203	
5	Architectural Coating	Architectural Coating	5/1/2020	12/31/2020	5	175	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 16.5

Acres of Paving: 1.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 89,546; Non-Residential Outdoor: 29,849; Striped Parking Area: 3,864 (Architectural Coating – sqft)

OffRoad Equipment

Liberty HS - San Diego County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
Building Construction	Cranes	1	3.00	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
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Liberty HS - San Diego County, Summer

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

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

Liberty HS - San Diego County, Summer

3.2 Site Preparation - 2020**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	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	0.4656	2.0175	20.8690	0.0380	18.0663	9.3100e-003	18.0756	9.9307	9.3100e-003	9.9400	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Liberty HS - San Diego County, Summer

3.2 Site Preparation - 2020**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	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077

3.3 Grading - 2020**Unmitigated Construction On-Site**

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

Liberty HS - San Diego County, Summer

3.3 Grading - 2020**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	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		7.2600e-003	7.2600e-003		7.2600e-003	7.2600e-003	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	0.3632	1.5737	17.7527	0.0297	6.5523	7.2600e-003	6.5596	3.3675	7.2600e-003	3.3747	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106

Liberty HS - San Diego County, Summer

3.3 Grading - 2020**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	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064

3.4 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2533					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.6098	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

Liberty HS - San Diego County, Summer

3.4 Paving - 2020**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	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064

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	0.2805	1.2154	17.2957	0.0228		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2533					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.5337	1.2154	17.2957	0.0228		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

Liberty HS - San Diego County, Summer

3.4 Paving - 2020**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	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064

3.5 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	1.8931	16.4903	15.7908	0.0240		1.0059	1.0059		0.9481	0.9481		2,273.6682	2,273.6682	0.5325		2,286.9806
Total	1.8931	16.4903	15.7908	0.0240		1.0059	1.0059		0.9481	0.9481		2,273.6682	2,273.6682	0.5325		2,286.9806

Liberty HS - San Diego County, Summer

3.5 Building Construction - 2020**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	0.0747	2.2552	0.5745	5.4800e-003	0.1354	0.0110	0.1464	0.0390	0.0106	0.0495		588.0802	588.0802	0.0434		589.1647
Worker	0.1908	0.1286	1.4740	4.4000e-003	0.4272	3.0000e-003	0.4302	0.1133	2.7600e-003	0.1161		438.2285	438.2285	0.0131		438.5556
Total	0.2656	2.3837	2.0485	9.8800e-003	0.5626	0.0140	0.5766	0.1523	0.0133	0.1656		1,026.3086	1,026.3086	0.0565		1,027.7203

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	0.2924	2.0811	16.1606	0.0240		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	2,273.6682	2,273.6682	0.5325		2,286.9806
Total	0.2924	2.0811	16.1606	0.0240		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	2,273.6682	2,273.6682	0.5325		2,286.9806

Liberty HS - San Diego County, Summer

3.5 Building Construction - 2020**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	0.0747	2.2552	0.5745	5.4800e-003	0.1354	0.0110	0.1464	0.0390	0.0106	0.0495		588.0802	588.0802	0.0434		589.1647
Worker	0.1908	0.1286	1.4740	4.4000e-003	0.4272	3.0000e-003	0.4302	0.1133	2.7600e-003	0.1161		438.2285	438.2285	0.0131		438.5556
Total	0.2656	2.3837	2.0485	9.8800e-003	0.5626	0.0140	0.5766	0.1523	0.0133	0.1656		1,026.3086	1,026.3086	0.0565		1,027.7203

3.6 Architectural Coating - 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					
Archit. Coating	3.2646					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	3.5068	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

Liberty HS - San Diego County, Summer

3.6 Architectural Coating - 2020**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	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376

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	3.2646					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0218		281.9928
Total	3.2943	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0218		281.9928

Liberty HS - San Diego County, Summer

3.6 Architectural Coating - 2020**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	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Liberty HS - San Diego County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.4610	5.8849	16.6930	0.0568	4.7467	0.0463	4.7930	1.2687	0.0433	1.3119		5,764.527 3	5,764.527 3	0.2983		5,771.984 5
Unmitigated	1.4610	5.8849	16.6930	0.0568	4.7467	0.0463	4.7930	1.2687	0.0433	1.3119		5,764.527 3	5,764.527 3	0.2983		5,771.984 5

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	855.00	274.50	112.50	1,743,695	1,743,695
Parking Lot	0.00	0.00	0.00		
Total	855.00	274.50	112.50	1,743,695	1,743,695

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Parking Lot	9.50	7.30	7.30	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
High School	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Parking Lot	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

Liberty HS - San Diego County, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
NaturalGas Unmitigated	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879

Liberty HS - San Diego County, Summer

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					
High School	968.243	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
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		0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879

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					
High School	0.968243	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
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		0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879

6.0 Area Detail**6.1 Mitigation Measures Area**

Liberty HS - San Diego County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Unmitigated	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426

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	0.1639					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8500e-003	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Total	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426

Liberty HS - San Diego County, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1639					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8500e-003	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Total	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Liberty HS - San Diego County, Summer

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

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

Equipment Type	Number
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11.0 Vegetation

Liberty HS - San Diego County, Winter

Liberty HS
San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	450.00	Student	6.25	59,697.44	0
Parking Lot	161.00	Space	1.45	64,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	525.68	CH4 Intensity (lb/MWhr)	0.021	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Liberty HS - San Diego County, Winter

Project Characteristics - 2021 RPS

Land Use - Site is 7.7 Acres

Construction Phase - CS

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - ce

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT -

Grading -

Architectural Coating - rule 67 paint

Vehicle Trips - 854 per traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - rule 67 compliant paint

Energy Use -

Construction Off-road Equipment Mitigation - Tier III Required

Energy Mitigation - Per PV Watts 90KW system generates 149,002 kWh

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00

Liberty HS - San Diego County, Winter

tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Liberty HS - San Diego County, Winter

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	230.00	203.00
tblConstructionPhase	NumDays	20.00	175.00
tblLandUse	LotAcreage	1.37	6.25
tblOffRoadEquipment	UsageHours	7.00	3.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.021
tblProjectCharacteristics	CO2IntensityFactor	720.49	525.68
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	WD_TR	1.71	1.90

2.0 Emissions Summary

Liberty HS - San Diego County, Winter

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	5.7359	42.4673	21.9947	0.0394	18.2141	2.1985	20.4126	9.9699	2.0226	11.9925	0.0000	3,827.505 3	3,827.505 3	1.1961	0.0000	3,857.408 4
Maximum	5.7359	42.4673	21.9947	0.0394	18.2141	2.1985	20.4126	9.9699	2.0226	11.9925	0.0000	3,827.505 3	3,827.505 3	1.1961	0.0000	3,857.408 4

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	3.9226	4.6353	21.3500	0.0394	18.2141	0.0208	18.2245	9.9699	0.0201	9.9802	0.0000	3,827.505 3	3,827.505 3	1.1961	0.0000	3,857.408 4
Maximum	3.9226	4.6353	21.3500	0.0394	18.2141	0.0208	18.2245	9.9699	0.0201	9.9802	0.0000	3,827.505 3	3,827.505 3	1.1961	0.0000	3,857.408 4

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	31.61	89.08	2.93	0.00	0.00	99.05	10.72	0.00	99.01	16.78	0.00	0.00	0.00	0.00	0.00	0.00

Liberty HS - San Diego County, Winter

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	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Energy	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
Mobile	1.4184	6.0479	16.4639	0.0538	4.7467	0.0467	4.7933	1.2687	0.0436	1.3123		5,466.2885	5,466.2885	0.2999		5,473.7847
Total	2.8989	6.1434	16.6063	0.0544	4.7467	0.0541	4.8008	1.2687	0.0511	1.3197		5,580.3332	5,580.3332	0.3024	2.0900e-003	5,588.5153

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	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Energy	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
Mobile	1.4184	6.0479	16.4639	0.0538	4.7467	0.0467	4.7933	1.2687	0.0436	1.3123		5,466.2885	5,466.2885	0.2999		5,473.7847
Total	2.8989	6.1434	16.6063	0.0544	4.7467	0.0541	4.8008	1.2687	0.0511	1.3197		5,580.3332	5,580.3332	0.3024	2.0900e-003	5,588.5153

Liberty HS - San Diego County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	1/14/2020	5	10	
2	Grading	Grading	1/15/2020	2/28/2020	5	33	
3	Paving	Paving	3/1/2020	3/20/2020	5	15	
4	Building Construction	Building Construction	3/22/2020	12/30/2020	5	203	
5	Architectural Coating	Architectural Coating	5/1/2020	12/31/2020	5	175	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 16.5

Acres of Paving: 1.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 89,546; Non-Residential Outdoor: 29,849; Striped Parking Area: 3,864 (Architectural Coating – sqft)

OffRoad Equipment

Liberty HS - San Diego County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
Building Construction	Cranes	1	3.00	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
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Liberty HS - San Diego County, Winter

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

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

Liberty HS - San Diego County, Winter

3.2 Site Preparation - 2020**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	0.0748	0.0500	0.4810	1.4300e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		142.4038	142.4038	4.2900e-003		142.5109
Total	0.0748	0.0500	0.4810	1.4300e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		142.4038	142.4038	4.2900e-003		142.5109

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0380		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	0.4656	2.0175	20.8690	0.0380	18.0663	9.3100e-003	18.0756	9.9307	9.3100e-003	9.9400	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Liberty HS - San Diego County, Winter

3.2 Site Preparation - 2020**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	0.0748	0.0500	0.4810	1.4300e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		142.4038	142.4038	4.2900e-003		142.5109
Total	0.0748	0.0500	0.4810	1.4300e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		142.4038	142.4038	4.2900e-003		142.5109

3.3 Grading - 2020**Unmitigated Construction On-Site**

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

Liberty HS - San Diego County, Winter

3.3 Grading - 2020**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	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	0.3632	1.5737	17.7527	0.0297		7.2600e-003	7.2600e-003		7.2600e-003	7.2600e-003	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	0.3632	1.5737	17.7527	0.0297	6.5523	7.2600e-003	6.5596	3.3675	7.2600e-003	3.3747	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106

Liberty HS - San Diego County, Winter

3.3 Grading - 2020**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	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591

3.4 Paving - 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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2533					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.6098	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841

Liberty HS - San Diego County, Winter

3.4 Paving - 2020**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	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591

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	0.2805	1.2154	17.2957	0.0228		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2533					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.5337	1.2154	17.2957	0.0228		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841

Liberty HS - San Diego County, Winter

3.4 Paving - 2020**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	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591

3.5 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	1.8931	16.4903	15.7908	0.0240		1.0059	1.0059		0.9481	0.9481		2,273.6682	2,273.6682	0.5325		2,286.9806
Total	1.8931	16.4903	15.7908	0.0240		1.0059	1.0059		0.9481	0.9481		2,273.6682	2,273.6682	0.5325		2,286.9806

Liberty HS - San Diego County, Winter

3.5 Building Construction - 2020**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	0.0783	2.2533	0.6376	5.3400e-003	0.1354	0.0112	0.1466	0.0390	0.0108	0.0497		572.9244	572.9244	0.0461		574.0770
Worker	0.2161	0.1444	1.3897	4.1300e-003	0.4272	3.0000e-003	0.4302	0.1133	2.7600e-003	0.1161		411.3886	411.3886	0.0124		411.6983
Total	0.2944	2.3977	2.0273	9.4700e-003	0.5626	0.0142	0.5768	0.1523	0.0135	0.1658		984.3131	984.3131	0.0585		985.7752

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	0.2924	2.0811	16.1606	0.0240		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	2,273.6682	2,273.6682	0.5325		2,286.9806
Total	0.2924	2.0811	16.1606	0.0240		5.4100e-003	5.4100e-003		5.4100e-003	5.4100e-003	0.0000	2,273.6682	2,273.6682	0.5325		2,286.9806

Liberty HS - San Diego County, Winter

3.5 Building Construction - 2020**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	0.0783	2.2533	0.6376	5.3400e-003	0.1354	0.0112	0.1466	0.0390	0.0108	0.0497		572.9244	572.9244	0.0461		574.0770
Worker	0.2161	0.1444	1.3897	4.1300e-003	0.4272	3.0000e-003	0.4302	0.1133	2.7600e-003	0.1161		411.3886	411.3886	0.0124		411.6983
Total	0.2944	2.3977	2.0273	9.4700e-003	0.5626	0.0142	0.5768	0.1523	0.0135	0.1658		984.3131	984.3131	0.0585		985.7752

3.6 Architectural Coating - 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					
Archit. Coating	3.2646					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	3.5068	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928

Liberty HS - San Diego County, Winter

3.6 Architectural Coating - 2020**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	0.0416	0.0278	0.2673	7.9000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		79.1132	79.1132	2.3800e-003		79.1727
Total	0.0416	0.0278	0.2673	7.9000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		79.1132	79.1132	2.3800e-003		79.1727

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	3.2646					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0218		281.9928
Total	3.2943	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0218		281.9928

Liberty HS - San Diego County, Winter

3.6 Architectural Coating - 2020**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	0.0416	0.0278	0.2673	7.9000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		79.1132	79.1132	2.3800e-003		79.1727
Total	0.0416	0.0278	0.2673	7.9000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		79.1132	79.1132	2.3800e-003		79.1727

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Liberty HS - San Diego County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.4184	6.0479	16.4639	0.0538	4.7467	0.0467	4.7933	1.2687	0.0436	1.3123		5,466.2885	5,466.2885	0.2999		5,473.7847
Unmitigated	1.4184	6.0479	16.4639	0.0538	4.7467	0.0467	4.7933	1.2687	0.0436	1.3123		5,466.2885	5,466.2885	0.2999		5,473.7847

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	855.00	274.50	112.50	1,743,695	1,743,695
Parking Lot	0.00	0.00	0.00		
Total	855.00	274.50	112.50	1,743,695	1,743,695

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Parking Lot	9.50	7.30	7.30	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
High School	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Parking Lot	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

Liberty HS - San Diego County, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
NaturalGas Unmitigated	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879

Liberty HS - San Diego County, Winter

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					
High School	968.243	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
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		0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879

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					
High School	0.968243	0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879
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		0.0104	0.0949	0.0797	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003		113.9110	113.9110	2.1800e-003	2.0900e-003	114.5879

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Unmitigated	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426

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	0.1639					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8500e-003	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Total	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1639					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.8500e-003	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426
Total	1.4701	5.7000e-004	0.0626	0.0000		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004		0.1337	0.1337	3.6000e-004		0.1426

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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11.0 Vegetation

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Liberty HS
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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	450.00	Student	6.25	59,697.44	0
Parking Lot	161.00	Space	1.45	64,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MW hr)	525.68	CH4 Intensity (lb/MW hr)	0.021	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - 2021 RPS

Land Use - Site is 7.7 Acres

Construction Phase - CS

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - ce

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT -

Grading -

Architectural Coating - rule 67 paint

Vehicle Trips - 854 per traffic study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - rule 67 compliant paint

Energy Use -

Construction Off-road Equipment Mitigation - Tier III Required

Energy Mitigation - Per PV Watts 90KW system generates 149,002 kWh

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00

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tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	230.00	203.00
tblConstructionPhase	NumDays	20.00	175.00
tblLandUse	LotAcreage	1.37	6.25
tblOffRoadEquipment	UsageHours	7.00	3.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.021
tblProjectCharacteristics	CO2IntensityFactor	720.49	525.68
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblVehicleTrips	WD_TR	1.71	1.90

2.0 Emissions Summary

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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	0.6036	2.8235	2.4835	4.6300e-003	0.2649	0.1510	0.4158	0.1232	0.1420	0.2652	0.0000	407.8595	407.8595	0.0805	0.0000	409.8713
Maximum	0.6036	2.8235	2.4835	4.6300e-003	0.2649	0.1510	0.4158	0.1232	0.1420	0.2652	0.0000	407.8595	407.8595	0.0805	0.0000	409.8713

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	0.3623	0.5171	2.5658	4.6300e-003	0.2649	2.3200e-003	0.2672	0.1232	2.2400e-003	0.1254	0.0000	407.8591	407.8591	0.0805	0.0000	409.8710
Maximum	0.3623	0.5171	2.5658	4.6300e-003	0.2649	2.3200e-003	0.2672	0.1232	2.2400e-003	0.1254	0.0000	407.8591	407.8591	0.0805	0.0000	409.8710

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	39.97	81.69	-3.31	0.00	0.00	98.46	35.75	0.00	98.42	52.70	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
9	1-1-2020	3-31-2020	0.8858	0.0772
10	4-1-2020	6-30-2020	0.7980	0.2392
11	7-1-2020	9-30-2020	0.8636	0.2795
		Highest	0.8858	0.2795

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	0.2678	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116
Energy	1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	98.8227	98.8227	3.5600e-003	9.5000e-004	99.1959
Mobile	0.1961	0.8601	2.3062	7.7000e-003	0.6571	6.5800e-003	0.6637	0.1760	6.1500e-003	0.1821	0.0000	709.7139	709.7139	0.0381	0.0000	710.6674
Waste						0.0000	0.0000		0.0000	0.0000	16.6717	0.0000	16.6717	0.9853	0.0000	41.3033
Water						0.0000	0.0000		0.0000	0.0000	0.6289	19.6574	20.2863	0.0654	1.6700e-003	22.4198
Total	0.4657	0.8775	2.3264	7.8000e-003	0.6571	7.9200e-003	0.6651	0.1760	7.4900e-003	0.1835	17.3005	828.2049	845.5055	1.0924	2.6200e-003	873.5980

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2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2678	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116
Energy	1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	63.2940	63.2940	2.1400e-003	6.8000e-004	63.5512
Mobile	0.1961	0.8601	2.3062	7.7000e-003	0.6571	6.5800e-003	0.6637	0.1760	6.1500e-003	0.1821	0.0000	709.7139	709.7139	0.0381	0.0000	710.6674
Waste						0.0000	0.0000		0.0000	0.0000	16.6717	0.0000	16.6717	0.9853	0.0000	41.3033
Water						0.0000	0.0000		0.0000	0.0000	0.6289	19.6574	20.2863	0.0654	1.6700e-003	22.4198
Total	0.4657	0.8775	2.3264	7.8000e-003	0.6571	7.9200e-003	0.6651	0.1760	7.4900e-003	0.1835	17.3005	792.6762	809.9768	1.0910	2.3500e-003	837.9533

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	4.20	0.13	10.31	4.08

3.0 Construction Detail**Construction Phase**

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2020	1/14/2020	5	10	
2	Grading	Grading	1/15/2020	2/28/2020	5	33	
3	Paving	Paving	3/1/2020	3/20/2020	5	15	
4	Building Construction	Building Construction	3/22/2020	12/30/2020	5	203	
5	Architectural Coating	Architectural Coating	5/1/2020	12/31/2020	5	175	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 16.5

Acres of Paving: 1.45

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 89,546; Non-Residential Outdoor: 29,849; Striped Parking Area: 3,864 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
Building Construction	Cranes	1	3.00	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
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	0.0204	0.2121	0.1076	1.9000e-004	0.0903	0.0110	0.1013	0.0497	0.0101	0.0598	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505

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3.2 Site Preparation - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.4100e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6524	0.6524	2.0000e-005	0.0000	0.6529
Total	3.3000e-004	2.5000e-004	2.4100e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6524	0.6524	2.0000e-005	0.0000	0.6529

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	2.3300e-003	0.0101	0.1043	1.9000e-004	0.0903	5.0000e-005	0.0904	0.0497	5.0000e-005	0.0497	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505

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3.2 Site Preparation - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.4100e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6524	0.6524	2.0000e-005	0.0000	0.6529
Total	3.3000e-004	2.5000e-004	2.4100e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6524	0.6524	2.0000e-005	0.0000	0.6529

3.3 Grading - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1081	0.0000	0.1081	0.0556	0.0000	0.0556	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0401	0.4354	0.2649	4.9000e-004		0.0210	0.0210		0.0193	0.0193	0.0000	42.9969	42.9969	0.0139	0.0000	43.3446
Total	0.0401	0.4354	0.2649	4.9000e-004	0.1081	0.0210	0.1291	0.0556	0.0193	0.0749	0.0000	42.9969	42.9969	0.0139	0.0000	43.3446

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3.3 Grading - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	6.8000e-004	6.6200e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.7941	1.7941	5.0000e-005	0.0000	1.7954
Total	9.1000e-004	6.8000e-004	6.6200e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.7941	1.7941	5.0000e-005	0.0000	1.7954

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					0.1081	0.0000	0.1081	0.0556	0.0000	0.0556	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9900e-003	0.0260	0.2929	4.9000e-004		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	42.9969	42.9969	0.0139	0.0000	43.3445
Total	5.9900e-003	0.0260	0.2929	4.9000e-004	0.1081	1.2000e-004	0.1082	0.0556	1.2000e-004	0.0557	0.0000	42.9969	42.9969	0.0139	0.0000	43.3445

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3.3 Grading - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	6.8000e-004	6.6200e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.7941	1.7941	5.0000e-005	0.0000	1.7954
Total	9.1000e-004	6.8000e-004	6.6200e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.7941	1.7941	5.0000e-005	0.0000	1.7954

3.4 Paving - 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	0.0102	0.1055	0.1099	1.7000e-004		5.6500e-003	5.6500e-003		5.1900e-003	5.1900e-003	0.0000	15.0212	15.0212	4.8600e-003	0.0000	15.1426
Paving	1.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0121	0.1055	0.1099	1.7000e-004		5.6500e-003	5.6500e-003		5.1900e-003	5.1900e-003	0.0000	15.0212	15.0212	4.8600e-003	0.0000	15.1426

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3.4 Paving - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.1000e-004	3.0100e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8155	0.8155	2.0000e-005	0.0000	0.8161
Total	4.1000e-004	3.1000e-004	3.0100e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8155	0.8155	2.0000e-005	0.0000	0.8161

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	2.1000e-003	9.1200e-003	0.1297	1.7000e-004		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	15.0212	15.0212	4.8600e-003	0.0000	15.1426
Paving	1.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.0000e-003	9.1200e-003	0.1297	1.7000e-004		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	15.0212	15.0212	4.8600e-003	0.0000	15.1426

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3.4 Paving - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.1000e-004	3.0100e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8155	0.8155	2.0000e-005	0.0000	0.8161
Total	4.1000e-004	3.1000e-004	3.0100e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8155	0.8155	2.0000e-005	0.0000	0.8161

3.5 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	0.1922	1.6738	1.6028	2.4400e-003		0.1021	0.1021		0.0962	0.0962	0.0000	209.3577	209.3577	0.0490	0.0000	210.5835
Total	0.1922	1.6738	1.6028	2.4400e-003		0.1021	0.1021		0.0962	0.0962	0.0000	209.3577	209.3577	0.0490	0.0000	210.5835

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3.5 Building Construction - 2020**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	7.7300e-003	0.2314	0.0615	5.5000e-004	0.0135	1.1300e-003	0.0146	3.8900e-003	1.0800e-003	4.9700e-003	0.0000	53.5639	53.5639	4.1100e-003	0.0000	53.6665
Worker	0.0195	0.0144	0.1412	4.2000e-004	0.0423	3.0000e-004	0.0426	0.0113	2.8000e-004	0.0115	0.0000	38.2589	38.2589	1.1500e-003	0.0000	38.2877
Total	0.0272	0.2458	0.2027	9.7000e-004	0.0558	1.4300e-003	0.0572	0.0151	1.3600e-003	0.0165	0.0000	91.8228	91.8228	5.2600e-003	0.0000	91.9542

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	0.0297	0.2112	1.6403	2.4400e-003		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	209.3574	209.3574	0.0490	0.0000	210.5832
Total	0.0297	0.2112	1.6403	2.4400e-003		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	209.3574	209.3574	0.0490	0.0000	210.5832

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3.5 Building Construction - 2020**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	7.7300e-003	0.2314	0.0615	5.5000e-004	0.0135	1.1300e-003	0.0146	3.8900e-003	1.0800e-003	4.9700e-003	0.0000	53.5639	53.5639	4.1100e-003	0.0000	53.6665
Worker	0.0195	0.0144	0.1412	4.2000e-004	0.0423	3.0000e-004	0.0426	0.0113	2.8000e-004	0.0115	0.0000	38.2589	38.2589	1.1500e-003	0.0000	38.2877
Total	0.0272	0.2458	0.2027	9.7000e-004	0.0558	1.4300e-003	0.0572	0.0151	1.3600e-003	0.0165	0.0000	91.8228	91.8228	5.2600e-003	0.0000	91.9542

3.6 Architectural Coating - 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					
Archit. Coating	0.2857					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0212	0.1473	0.1603	2.6000e-004		9.7100e-003	9.7100e-003		9.7100e-003	9.7100e-003	0.0000	22.3410	22.3410	1.7300e-003	0.0000	22.3842
Total	0.3068	0.1473	0.1603	2.6000e-004		9.7100e-003	9.7100e-003		9.7100e-003	9.7100e-003	0.0000	22.3410	22.3410	1.7300e-003	0.0000	22.3842

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3.6 Architectural Coating - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2300e-003	2.3900e-003	0.0234	7.0000e-005	7.0200e-003	5.0000e-005	7.0700e-003	1.8600e-003	5.0000e-005	1.9100e-003	0.0000	6.3427	6.3427	1.9000e-004	0.0000	6.3474
Total	3.2300e-003	2.3900e-003	0.0234	7.0000e-005	7.0200e-003	5.0000e-005	7.0700e-003	1.8600e-003	5.0000e-005	1.9100e-003	0.0000	6.3427	6.3427	1.9000e-004	0.0000	6.3474

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	0.2857					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6000e-003	0.0113	0.1603	2.6000e-004		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	22.3409	22.3409	1.7300e-003	0.0000	22.3842
Total	0.2883	0.0113	0.1603	2.6000e-004		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	22.3409	22.3409	1.7300e-003	0.0000	22.3842

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3.6 Architectural Coating - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2300e-003	2.3900e-003	0.0234	7.0000e-005	7.0200e-003	5.0000e-005	7.0700e-003	1.8600e-003	5.0000e-005	1.9100e-003	0.0000	6.3427	6.3427	1.9000e-004	0.0000	6.3474
Total	3.2300e-003	2.3900e-003	0.0234	7.0000e-005	7.0200e-003	5.0000e-005	7.0700e-003	1.8600e-003	5.0000e-005	1.9100e-003	0.0000	6.3427	6.3427	1.9000e-004	0.0000	6.3474

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.1961	0.8601	2.3062	7.7000e-003	0.6571	6.5800e-003	0.6637	0.1760	6.1500e-003	0.1821	0.0000	709.7139	709.7139	0.0381	0.0000	710.6674
Unmitigated	0.1961	0.8601	2.3062	7.7000e-003	0.6571	6.5800e-003	0.6637	0.1760	6.1500e-003	0.1821	0.0000	709.7139	709.7139	0.0381	0.0000	710.6674

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	855.00	274.50	112.50	1,743,695	1,743,695
Parking Lot	0.00	0.00	0.00		
Total	855.00	274.50	112.50	1,743,695	1,743,695

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Parking Lot	9.50	7.30	7.30	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
High School	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Parking Lot	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

Liberty HS - San Diego County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	44.4347	44.4347	1.7800e-003	3.4000e-004	44.5799
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	79.9634	79.9634	3.1900e-003	6.1000e-004	80.2246
NaturalGas Mitigated	1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8592	18.8592	3.6000e-004	3.5000e-004	18.9713
NaturalGas Unmitigated	1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8592	18.8592	3.6000e-004	3.5000e-004	18.9713

Liberty HS - San Diego County, Annual

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					
High School	353409	1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8592	18.8592	3.6000e-004	3.5000e-004	18.9713
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		1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8592	18.8592	3.6000e-004	3.5000e-004	18.9713

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					
High School	353409	1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8592	18.8592	3.6000e-004	3.5000e-004	18.9713
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		1.9100e-003	0.0173	0.0146	1.0000e-004		1.3200e-003	1.3200e-003		1.3200e-003	1.3200e-003	0.0000	18.8592	18.8592	3.6000e-004	3.5000e-004	18.9713

Liberty HS - San Diego County, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	312815	74.5889	2.9800e-003	5.7000e-004	74.8325
Parking Lot	22540	5.3745	2.1000e-004	4.0000e-005	5.3921
Total		79.9634	3.1900e-003	6.1000e-004	80.2246

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	238314	56.8246	2.2700e-003	4.3000e-004	57.0102
Parking Lot	-51961	-12.3898	-0.0005	-0.0001	-12.4303
Total		44.4347	1.7800e-003	3.4000e-004	44.5799

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.2678	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116
Unmitigated	0.2678	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116

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	0.0299					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2373					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3000e-004	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116
Total	0.2678	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116

Liberty HS - San Diego County, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0299					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2373					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.3000e-004	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116
Total	0.2678	5.0000e-005	5.6400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0109	0.0109	3.0000e-005	0.0000	0.0116

7.0 Water Detail**7.1 Mitigation Measures Water**

Liberty HS - San Diego County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.2863	0.0654	1.6700e-003	22.4198
Unmitigated	20.2863	0.0654	1.6700e-003	22.4198

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	1.98223 / 5.09717	20.2863	0.0654	1.6700e-003	22.4198
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		20.2863	0.0654	1.6700e-003	22.4198

Liberty HS - San Diego County, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	1.98223 / 5.09717	20.2863	0.0654	1.6700e-003	22.4198
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		20.2863	0.0654	1.6700e-003	22.4198

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	16.6717	0.9853	0.0000	41.3033
Unmitigated	16.6717	0.9853	0.0000	41.3033

Liberty HS - San Diego County, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	82.13	16.6717	0.9853	0.0000	41.3033
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		16.6717	0.9853	0.0000	41.3033

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	82.13	16.6717	0.9853	0.0000	41.3033
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		16.6717	0.9853	0.0000	41.3033

9.0 Operational Offroad

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

Liberty HS - San Diego County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

ATTACHMENT B

AERMOD - Unmitigated

1 AERMOD PRIME - (DATED 18081)
AERMODPrMSPx VERSION
(C) COPYRIGHT 1998-2017, Trinity Consultants

Run Began on 10/04/2019 at 9:44:48

** BREEZE AERMOD
** Trinity Consultants
** VERSION 8.1

CO STARTING
CO TITLEONE Liberty Unmitigated DPM
CO MODELOPT DFAULT CONC NODRYDPLT NOWETDPLT
CO RUNORNOT RUN
CO AVERTIME ANNUAL
CO POLLUTID PM10
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION 97RW0000 AREAPOLY 506688.6 3625649.9 0
SO SRCPARAM 97RW0000 1.38E-07 3 9 1
SO AREAVERT 97RW0000 506688.6 3625649.9 506670.8 3625520.9 506568.7 3625522.2 506569.4 3625533.6
SO AREAVERT 97RW0000 506508.2 3625535.8 506492.3 3625556.1 506498.4 3625663.2 506595.7 3625660.4
SO AREAVERT 97RW0000 506688.6 3625649.9
SO SRCGROUP ALL
SO FINISHED

RE STARTING
RE ELEVUNIT METERS
RE DISCCART 506801.9 3625701.1 0 0
** SENSITIV
** RCPDESCR R1
RE DISCCART 506797.3 3625616 0 0
** SENSITIV
** RCPDESCR R2
RE DISCCART 506634.1 3625505.5 0 0
** SENSITIV
** RCPDESCR R2
RE DISCCART 506516.1 3625503.5 0 0
** SENSITIV
** RCPDESCR R4
RE DISCCART 506451.7 3625600.8 0 0
** SENSITIV
** RCPDESCR R5
RE DISCCART 506497.8 3625697 0 0
** SENSITIV
** RCPDESCR R6
RE FINISHED

ME STARTING
ME SURFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.SFC"
** SURFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.SFC"
ME PROFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.PFL"
** PROFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.PFL"
ME SURFDATA 93107 2012
ME UAIRDATA 3190 2012
ME SITEDATA 00000003 2012
ME PROFBASE 0 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU FINISHED

** *****
** It is recommended that the user not edit any data below this line
** *****

** AMPTYPE
** AMPDATUM -1
** AMPZONE -1
** AMPHEMISPHERE

** PROJECTIONWKT
PROJCS["UTM_6326_Zone11",GEOGCS["WGS_84",DATUM["World_Geodetic_System_1984",SPHEROID["WGS_1984",6378137,298.257223563],TOWGS84[0,0,0,0,0,0,0]],PRIMEM["Greenwich",0],UNIT["Degree",0.0174532925199433]],PROJECTION["Universal_Transverse_Mercator"],PARAMETER["Zone",11],UNIT["Meter",1,AUTHORITY["EPSG","9001"]]]
** PROJECTION UTM
** DATUM WGE
** UNITS METER
** ZONE 11
** HEMISPHERE N
** ORIGINLON 0
** ORIGINLAT 0
** PARALLEL1 0
** PARALLEL2 0
** AZIMUTH 0
** SCALEFACT 0
** FALSEEAST 0
** FALSENORTH 0

** POSTFMT UNIFORM
** TEMPLATE USERDEFINED
** AERMODEXE AERMOD_BREEZE_18081_64.EXE
** AERMAPEXE AERMAP_EPA_18081_64.EXE

*** SETUP Finishes Successfully ***

▲ *** AERMOD - VERSION 18081 *** *** Liberty Unmitigated DPM ***
10/04/19
*** AERMET - VERSION 15181 *** *** ***
09:44:48

PAGE 1
*** MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** MODEL SETUP OPTIONS SUMMARY ***

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

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

**Model Uses RURAL Dispersion Only.

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

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

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: PM10

**Model Calculates ANNUAL Averages Only

**This Run Includes: 1 Source(s); 1 Source Group(s); and 6 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 AREA type source(s)
and: 0 LINE source(s)
and: 0 OPENPIT source(s)
and: 0 BUOYANT LINE source(s) with 0 line(s)

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

**The AERMET Input Meteorological Data Version Date: 15181

**Output Options Selected:
Model Outputs Tables of ANNUAL Averages by Receptor

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

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 0.00 ; Decay Coef. = 0.000 ; Rot. Angle
= 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor =
0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

▲ *** AERMOD - VERSION 18081 *** *** Liberty Unmitigated DPM ***
10/04/19
*** AERMET - VERSION 15181 *** ***
09:44:48 ***

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*** MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X Y (METERS) (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
--------------	--------------------------	---	--	---------------------------	-------------------------------	---------------------	-------------------------	-----------------	------------------------------------

97RW0000	0	0.13800E-06	506688.6 3625649.9	0.0	3.00	9	1.00	NO	
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▲ *** AERMOD - VERSION 18081 *** *** Liberty Unmitigated DPM ***
10/04/19
*** AERMET - VERSION 15181 *** ***
09:44:48 ***

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*** MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SOURCE IDs

PAGE 4
*** MODELOPTS: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

[illegible]

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

PAGE 5
*** MODELOPTs: RegDFault CONC ELEV NODRYDPLT NOWETDPLT RURAL

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

Profile format: FREE

Surface station no.: 93107	Upper air station no.: 3190
Name: UNKNOWN	Name: UNKNOWN
Year: 2012	Year: 2012

First 24 hours of scalar data																					
YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA
HT																					
12	01	01	1	01	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.44	1.19	1.00	0.00	0.	10.0	280.9			

12 01 01	1 02	-18.0	0.160	-9.000	-9.000	-999.	154.	20.4	0.09	1.19	1.00	2.86	58.	10.0	280.4
10.0															
12 01 01	1 03	-23.7	0.210	-9.000	-9.000	-999.	231.	34.9	0.18	1.19	1.00	2.86	94.	10.0	279.2
10.0															
12 01 01	1 04	-20.2	0.178	-9.000	-9.000	-999.	181.	25.1	0.12	1.19	1.00	2.86	83.	10.0	278.6
10.0															
12 01 01	1 05	-20.2	0.178	-9.000	-9.000	-999.	181.	25.0	0.12	1.19	1.00	2.86	73.	10.0	278.1
10.0															
12 01 01	1 06	-0.6	0.026	-9.000	-9.000	-999.	71.	2.8	0.34	1.19	1.00	0.44	102.	10.0	277.5
10.0															
12 01 01	1 07	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.44	1.19	1.00	0.00	0.	10.0	277.5
10.0															
12 01 01	1 08	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.44	1.19	0.49	0.00	0.	10.0	278.1
10.0															
12 01 01	1 09	35.7	-9.000	-9.000	-9.000	37.	-999.	-99999.0	0.44	1.19	0.30	0.00	0.	10.0	282.5
10.0															
12 01 01	1 10	89.2	0.124	0.645	0.011	108.	105.	-1.9	0.52	1.19	0.23	0.44	296.	10.0	286.4
10.0															
12 01 01	1 11	126.8	0.130	0.992	0.006	276.	113.	-1.6	0.52	1.19	0.21	0.44	263.	10.0	291.4
10.0															
12 01 01	1 12	146.2	0.129	1.275	0.005	507.	111.	-1.3	0.46	1.19	0.20	0.44	318.	10.0	296.4
10.0															
12 01 01	1 13	145.4	0.133	1.451	0.005	751.	116.	-1.4	0.52	1.19	0.20	0.44	299.	10.0	299.8
10.0															
12 01 01	1 14	124.3	0.199	1.556	0.005	1084.	213.	-5.7	0.52	1.19	0.21	0.89	256.	10.0	301.4
10.0															
12 01 01	1 15	83.8	0.300	1.434	0.005	1258.	395.	-28.8	0.52	1.19	0.24	1.78	243.	10.0	301.9
10.0															
12 01 01	1 16	27.5	0.273	1.002	0.005	1306.	343.	-66.2	0.52	1.19	0.33	1.78	282.	10.0	301.4
10.0															
12 01 01	1 17	-0.6	0.030	-9.000	-9.000	-999.	189.	3.8	0.52	1.19	0.61	0.44	280.	10.0	298.1
10.0															
12 01 01	1 18	-0.5	0.026	-9.000	-9.000	-999.	77.	2.9	0.34	1.19	1.00	0.44	94.	10.0	292.5
10.0															
12 01 01	1 19	-0.6	0.028	-9.000	-9.000	-999.	16.	3.2	0.44	1.19	1.00	0.44	88.	10.0	290.4
10.0															
12 01 01	1 20	-0.6	0.026	-9.000	-9.000	-999.	10.	2.9	0.34	1.19	1.00	0.44	107.	10.0	288.1
10.0															
12 01 01	1 21	-0.7	0.030	-9.000	-9.000	-999.	12.	3.5	0.52	1.19	1.00	0.44	254.	10.0	285.9
10.0															
12 01 01	1 22	-0.6	0.026	-9.000	-9.000	-999.	10.	2.8	0.34	1.19	1.00	0.44	103.	10.0	284.8
10.0															
12 01 01	1 23	-0.6	0.027	-9.000	-9.000	-999.	11.	3.0	0.38	1.19	1.00	0.44	145.	10.0	283.1
10.0															
12 01 01	1 24	-0.6	0.026	-9.000	-9.000	-999.	10.	2.8	0.34	1.19	1.00	0.44	91.	10.0	281.9
10.0															

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	10.0	1	-999.	-99.00	280.9	-999.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

▲ *** AERMOD - VERSION 18081 *** *** Liberty Unmitigated DPM ***

10/04/19

*** AERMET - VERSION 15181 *** ***

09:44:48

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*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL

INCLUDING SOURCE(S): 97RW0000 ,

*** SENSITIVE DISCRETE RECEPTOR POINTS ***

** CONC OF PM10 IN MICROGRAMS/M**3

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
506801.90	3625701.10	0.24661	506797.30	3625616.00	0.27490
506634.10	3625505.50	0.55132	506516.10	3625503.50	0.48780
506451.70	3625600.80	1.38947	506497.80	3625697.00	1.04320

*** AERMOD - VERSION 18081 *** *** Liberty Unmitigated DPM ***
 10/04/19
 *** AERMET - VERSION 15181 *** ***
 09:44:48

PAGE 7
 *** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM10 IN MICROGRAMS/M**3 **

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

ALL	1ST HIGHEST VALUE IS	1.38947 AT (506451.70, 3625600.80, 0.00, 0.00, 0.00) SR
	2ND HIGHEST VALUE IS	1.04320 AT (506497.80, 3625697.00, 0.00, 0.00, 0.00) SR
	3RD HIGHEST VALUE IS	0.55132 AT (506634.10, 3625505.50, 0.00, 0.00, 0.00) SR
	4TH HIGHEST VALUE IS	0.48780 AT (506516.10, 3625503.50, 0.00, 0.00, 0.00) SR
	5TH HIGHEST VALUE IS	0.27490 AT (506797.30, 3625616.00, 0.00, 0.00, 0.00) SR
	6TH HIGHEST VALUE IS	0.24661 AT (506801.90, 3625701.10, 0.00, 0.00, 0.00) SR
	7TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
	8TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)

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

*** AERMOD - VERSION 18081 *** *** Liberty Unmitigated DPM ***
 10/04/19
 *** AERMET - VERSION 15181 *** ***
 09:44:48

PAGE 8
 *** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

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

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

A Total of	0 Fatal Error Message(s)
A Total of	5 Warning Message(s)
A Total of	537 Informational Message(s)
A Total of	8784 Hours Were Processed

A Total of 438 Calm Hours Identified
A Total of 99 Missing Hours Identified (1.13 Percent)

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

***** WARNING MESSAGES *****

MX W403	6	PFLCNV: Turbulence data is being used w/o ADJ_U* option	SigA Data
MX W402	6	PFLCNV: Turbulence data being used with ADJ_U* w/o DFAULT	Option
MX W403	7	PFLCNV: Turbulence data is being used w/o ADJ_U* option	SigA Data
MX W403	8	PFLCNV: Turbulence data is being used w/o ADJ_U* option	SigA Data
MX W403	9	PFLCNV: Turbulence data is being used w/o ADJ_U* option	SigA Data

*** AERMOD Finishes Successfully ***

ATTACHMENT C

AERMOD - Mitigated

1 AERMOD PRIME - (DATED 18081)
AERMODPrMSPx VERSION
(C) COPYRIGHT 1998-2017, Trinity Consultants

Run Began on 10/04/2019 at 9:47:19

** BREEZE AERMOD
** Trinity Consultants
** VERSION 8.1

CO STARTING
CO TITLEONE Liberty Mitigated DPM
CO MODELOPT DEFAULT CONC NODRYDPLT NOWETDPLT
CO RUNORNOT RUN
CO AVERTIME ANNUAL
CO POLLUTID PM10
CO FINISHED

SO STARTING
SO ELEVUNIT METERS
SO LOCATION 97RW0000 AREAPOLY 506688.6 3625649.9 0
SO SRCPARAM 97RW0000 7.47E-10 3 9 1
SO AREAVERT 97RW0000 506688.6 3625649.9 506670.8 3625520.9 506568.7 3625522.2 506569.4 3625533.6
SO AREAVERT 97RW0000 506508.2 3625535.8 506492.3 3625556.1 506498.4 3625663.2 506595.7 3625660.4
SO AREAVERT 97RW0000 506688.6 3625649.9
SO SRCGROUP ALL
SO FINISHED

RE STARTING
RE ELEVUNIT METERS
RE DISCCART 506801.9 3625701.1 0 0
** SENSITIV
** RCPDESCR R1
RE DISCCART 506797.3 3625616 0 0
** SENSITIV
** RCPDESCR R2
RE DISCCART 506634.1 3625505.5 0 0
** SENSITIV
** RCPDESCR R2
RE DISCCART 506516.1 3625503.5 0 0
** SENSITIV
** RCPDESCR R4
RE DISCCART 506451.7 3625600.8 0 0
** SENSITIV
** RCPDESCR R5
RE DISCCART 506497.8 3625697 0 0
** SENSITIV
** RCPDESCR R6
RE FINISHED

ME STARTING
ME SURFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.SFC"
** SURFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.SFC"
ME PROFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.PFL"
** PROFFILE "C:\USERS\XEONRT\AMAZON~1\LDN\METDAT~1\ECA_20~1\ECA_2012_V15181.PFL"
ME SURFDATA 93107 2012
ME UAIRDATA 3190 2012
ME SITEDATA 00000003 2012
ME PROFBASE 0 METERS
ME FINISHED

OU STARTING
OU FILEFORM FIX
OU FINISHED

** *****
** It is recommended that the user not edit any data below this line
** *****

** AMPTYPE
** AMPDATUM -1
** AMPZONE -1
** AMPHEMISPHERE

** PROJECTIONWKT
PROJCS["UTM_6326_Zone11",GEOGCS["WGS_84",DATUM["World_Geodetic_System_1984",SPHEROID["WGS_1984",6378137,298.257223563],TOWGS84[0,0,0,0,0,0,0]],PRIMEM["Greenwich",0],UNIT["Degree",0.0174532925199433]],PROJECTION["Universal_Transverse_Mercator"],PARAMETER["Zone",11],UNIT["Meter",1,AUTHORITY["EPSG","9001"]]]
** PROJECTION UTM
** DATUM WGE
** UNITS METER
** ZONE 11
** HEMISPHERE N
** ORIGINLON 0
** ORIGINLAT 0
** PARALLEL1 0
** PARALLEL2 0
** AZIMUTH 0
** SCALEFACT 0
** FALSEEAST 0
** FALSENORTH 0

** POSTFMT UNIFORM
** TEMPLATE USERDEFINED
** AERMODEXE AERMOD_BREEZE_18081_64.EXE
** AERMAPEXE AERMAP_EPA_18081_64.EXE

*** SETUP Finishes Successfully ***

▲ *** AERMOD - VERSION 18081 *** *** Liberty Mitigated DPM ***
10/04/19
*** AERMET - VERSION 15181 *** ***
09:47:19 ***

PAGE 1
*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** MODEL SETUP OPTIONS SUMMARY ***

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

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

**Model Uses RURAL Dispersion Only.

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

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

**Model Assumes No FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of: PM10

**Model Calculates ANNUAL Averages Only

**This Run Includes: 1 Source(s); 1 Source Group(s); and 6 Receptor(s)

with: 0 POINT(s), including
0 POINTCAP(s) and 0 POINTHOR(s)
and: 0 VOLUME source(s)
and: 1 AREA type source(s)
and: 0 LINE source(s)
and: 0 OPENPIT source(s)
and: 0 BUOYANT LINE source(s) with 0 line(s)

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

**The AERMET Input Meteorological Data Version Date: 15181

**Output Options Selected:
Model Outputs Tables of ANNUAL Averages by Receptor

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

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 0.00 ; Decay Coef. = 0.000 ; Rot. Angle
= 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor =
0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.5 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

▲ *** AERMOD - VERSION 18081 *** *** Liberty Mitigated DPM ***
10/04/19
*** AERMET - VERSION 15181 *** ***
09:47:19 ***

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*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X Y (METERS) (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
--------------	--------------------------	---	--	---------------------------	-------------------------------	---------------------	-------------------------	-----------------	------------------------------------

97RW0000	0	0.74700E-09	506688.6 3625649.9	0.0	3.00	9	1.00	NO	
----------	---	-------------	--------------------	-----	------	---	------	----	--

▲ *** AERMOD - VERSION 18081 *** *** Liberty Mitigated DPM ***
10/04/19
*** AERMET - VERSION 15181 *** ***
09:47:19 ***

PAGE 3

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SOURCE IDs

PAGE 4
*** MODELOPTS: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

[illegible]

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

PAGE 5
*** MODELOPTS: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

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

Profile format: FREE

Surface station no.: 93107	Upper air station no.: 3190
Name: UNKNOWN	Name: UNKNOWN
Year: 2012	Year: 2012

First 24 hours of scalar data																					
YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS	WD	HT	REF	TA
HT																					
12	01	01	1	01	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.44	1.19	1.00	0.00	0.	10.0	280.9			

12 01 01	1 02	-18.0	0.160	-9.000	-9.000	-999.	154.	20.4	0.09	1.19	1.00	2.86	58.	10.0	280.4
10.0															
12 01 01	1 03	-23.7	0.210	-9.000	-9.000	-999.	231.	34.9	0.18	1.19	1.00	2.86	94.	10.0	279.2
10.0															
12 01 01	1 04	-20.2	0.178	-9.000	-9.000	-999.	181.	25.1	0.12	1.19	1.00	2.86	83.	10.0	278.6
10.0															
12 01 01	1 05	-20.2	0.178	-9.000	-9.000	-999.	181.	25.0	0.12	1.19	1.00	2.86	73.	10.0	278.1
10.0															
12 01 01	1 06	-0.6	0.026	-9.000	-9.000	-999.	71.	2.8	0.34	1.19	1.00	0.44	102.	10.0	277.5
10.0															
12 01 01	1 07	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.44	1.19	1.00	0.00	0.	10.0	277.5
10.0															
12 01 01	1 08	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.44	1.19	0.49	0.00	0.	10.0	278.1
10.0															
12 01 01	1 09	35.7	-9.000	-9.000	-9.000	37.	-999.	-99999.0	0.44	1.19	0.30	0.00	0.	10.0	282.5
10.0															
12 01 01	1 10	89.2	0.124	0.645	0.011	108.	105.	-1.9	0.52	1.19	0.23	0.44	296.	10.0	286.4
10.0															
12 01 01	1 11	126.8	0.130	0.992	0.006	276.	113.	-1.6	0.52	1.19	0.21	0.44	263.	10.0	291.4
10.0															
12 01 01	1 12	146.2	0.129	1.275	0.005	507.	111.	-1.3	0.46	1.19	0.20	0.44	318.	10.0	296.4
10.0															
12 01 01	1 13	145.4	0.133	1.451	0.005	751.	116.	-1.4	0.52	1.19	0.20	0.44	299.	10.0	299.8
10.0															
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10.0															
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10.0															
12 01 01	1 16	27.5	0.273	1.002	0.005	1306.	343.	-66.2	0.52	1.19	0.33	1.78	282.	10.0	301.4
10.0															
12 01 01	1 17	-0.6	0.030	-9.000	-9.000	-999.	189.	3.8	0.52	1.19	0.61	0.44	280.	10.0	298.1
10.0															
12 01 01	1 18	-0.5	0.026	-9.000	-9.000	-999.	77.	2.9	0.34	1.19	1.00	0.44	94.	10.0	292.5
10.0															
12 01 01	1 19	-0.6	0.028	-9.000	-9.000	-999.	16.	3.2	0.44	1.19	1.00	0.44	88.	10.0	290.4
10.0															
12 01 01	1 20	-0.6	0.026	-9.000	-9.000	-999.	10.	2.9	0.34	1.19	1.00	0.44	107.	10.0	288.1
10.0															
12 01 01	1 21	-0.7	0.030	-9.000	-9.000	-999.	12.	3.5	0.52	1.19	1.00	0.44	254.	10.0	285.9
10.0															
12 01 01	1 22	-0.6	0.026	-9.000	-9.000	-999.	10.	2.8	0.34	1.19	1.00	0.44	103.	10.0	284.8
10.0															
12 01 01	1 23	-0.6	0.027	-9.000	-9.000	-999.	11.	3.0	0.38	1.19	1.00	0.44	145.	10.0	283.1
10.0															
12 01 01	1 24	-0.6	0.026	-9.000	-9.000	-999.	10.	2.8	0.34	1.19	1.00	0.44	91.	10.0	281.9
10.0															

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
12	01	01	01	10.0	1	-999.	-99.00	280.9	-999.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 18081 *** *** Liberty Mitigated DPM ***
 10/04/19
 *** AERMET - VERSION 15181 *** ***
 09:47:19

PAGE 6

*** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL

INCLUDING SOURCE(S): 97RW0000 ,

*** SENSITIVE DISCRETE RECEPTOR POINTS ***

** CONC OF PM10 IN MICROGRAMS/M**3

**

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
506801.90	3625701.10	0.00133	506797.30	3625616.00	0.00149
506634.10	3625505.50	0.00298	506516.10	3625503.50	0.00264
506451.70	3625600.80	0.00752	506497.80	3625697.00	0.00565

*** AERMOD - VERSION 18081 *** *** Liberty Mitigated DPM ***
 10/04/19
 *** AERMET - VERSION 15181 *** ***
 09:47:19

PAGE 7
 *** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 1 YEARS ***

** CONC OF PM10 IN MICROGRAMS/M**3 **

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

ALL	1ST HIGHEST VALUE IS	0.00752 AT (506451.70, 3625600.80, 0.00, 0.00, 0.00) SR
	2ND HIGHEST VALUE IS	0.00565 AT (506497.80, 3625697.00, 0.00, 0.00, 0.00) SR
	3RD HIGHEST VALUE IS	0.00298 AT (506634.10, 3625505.50, 0.00, 0.00, 0.00) SR
	4TH HIGHEST VALUE IS	0.00264 AT (506516.10, 3625503.50, 0.00, 0.00, 0.00) SR
	5TH HIGHEST VALUE IS	0.00149 AT (506797.30, 3625616.00, 0.00, 0.00, 0.00) SR
	6TH HIGHEST VALUE IS	0.00133 AT (506801.90, 3625701.10, 0.00, 0.00, 0.00) SR
	7TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
	8TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
	9TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)
	10TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00, 0.00)

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

*** AERMOD - VERSION 18081 *** *** Liberty Mitigated DPM ***
 10/04/19
 *** AERMET - VERSION 15181 *** ***
 09:47:19

PAGE 8
 *** MODELOPTs: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL

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

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

A Total of	0 Fatal Error Message(s)
A Total of	5 Warning Message(s)
A Total of	537 Informational Message(s)
A Total of	8784 Hours Were Processed

A Total of 438 Calm Hours Identified
A Total of 99 Missing Hours Identified (1.13 Percent)

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

***** WARNING MESSAGES *****
MX W403 6 PFLCNV: Turbulence data is being used w/o ADJ_U* option SigA Data
MX W402 6 PFLCNV: Turbulence data being used with ADJ_U* w/o DFAULT Option
MX W403 7 PFLCNV: Turbulence data is being used w/o ADJ_U* option SigA Data
MX W403 8 PFLCNV: Turbulence data is being used w/o ADJ_U* option SigA Data
MX W403 9 PFLCNV: Turbulence data is being used w/o ADJ_U* option SigA Data

*** AERMOD Finishes Successfully ***

ATTACHMENT D

Health Risk Calculations - Construction Unmitigated and Mitigated

Air Quality Health Risk Calculations (Worst-Case) Liberty Unmitigated							
From CalEE Annual Output	Emission per day (Ton/Total Construction Duration)	0.1495					
	Construction Start	1/1/2020					
	Construction Complete	12/31/2020					
	Days	365					
	Construction Emission per day (lb/day)	0.819178082					
	Annual Duration (Days)	365					
	Annualized Emission Rate (Grams/Second)	0.004294996					
	Project Site Size (Acres)	7.7					
	Project Site Size (meters^2)	31160.79445					
	Length of Smalles Side (meters)	176.5242036					
Used as an input to AERMOD	Emission Rate over Grading Area(g/s-m^2)	1.38E-07					
From AERMOD	Concentration Annual (Ug/M^3)	1.39					
Duration	Days	458	Days to years				
			1.254794521				
Age (Years)	3rd Trimester (0.25)		0-2	2-9	2-16	16-30	16-70
Cair (annual) - From F15	1.39		1.39	1.39	1.39	1.39	1.39
Breathing Rate per agegroup BR/BW (Page 5-25)	361		1090	861	745	335	290
A (Default is 1)	1		1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96		0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001		0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00048172		0.00145450	0.00114892	0.00099413	0.00044702	0.00038698
Construction Days	458		1.254794521				
potency factor for Diesel	1.1		1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10		10	3	3	1	1
ED	0.25		1.254794521	1.254794521	1.254794521	1.254794521	1.254794521
AT	70		70	70	70	70	70
FAH	0.85		0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	1.6086E-05		0.00024378	4.89339E-05	4.23412E-05	6.43459E-06	5.57024E-06
Risk per million Exposed	16.08595371		243.7803609	48.93394107	42.34121498	6.434591177	5.570243109
Cancer Risk Per Million 9-years	308.80						
Cancer Risk Per Million 30-years	308.64						
Cancer Risk Per Million 70-years	307.78						

Air Quality Health Risk Calculations (Worst-Case)						
Liberty Mitigated						
From CalEE Annual Output	Emission per day (Ton/Total Construction Duration)	0.00081				
	Construction Start	1/1/2020				
	Construction Complete	12/31/2020				
	Days	365				
	Construction Emission per day (lb/day)	0.004438356				
	Annual Duration (Days)	365				
	Annualized Emission Rate (Grams/Second)	2.32705E-05				
	Project Site Size (Acres)	7.7				
	Project Site Size (meters^2)	31160.79445				
	Length of Smalles Side (meters)	176.5242036				
Used as an input to AERMOD	Emission Rate over Grading Area(g/s-m^2)	7.47E-10				
From AERMOD	Concentration Annual (Ug/M^3)	0.00752				
	Days	Days to years				
Duration	458	1.254794521				
Age (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual) - From F15	0.00752	0.00752	0.00752	0.00752	0.00752	0.00752
Breathing Rate per agegroup BR/BW (Page 5-25)	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000261	0.00000787	0.00000622	0.00000538	0.00000242	0.00000209
Construction Days	458	1.254794521				
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	1.254794521	1.254794521	1.254794521	1.254794521	1.254794521
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	8.70262E-08	1.31887E-06	2.64736E-07	2.29069E-07	3.48116E-08	3.01354E-08
Risk per million Exposed	0.087026167	1.318869291	0.264736142	0.229069019	0.034811601	0.030135416
Cancer Risk Per Million 9-years	1.67					
Cancer Risk Per Million 30-years	1.67					
Cancer Risk Per Million 70-years	1.67					

ATTACHMENT E

PV Calculations



Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <https://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

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The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

149,002 kWh/Year*

System output may range from 143,221 to 149,941 kWh per year near this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Value (\$)
January	4.58	9,801	1,602
February	5.08	9,850	1,610
March	6.25	13,144	2,149
April	6.65	13,440	2,197
May	6.95	14,233	2,327
June	7.35	14,260	2,332
July	7.39	14,812	2,422
August	7.43	14,650	2,395
September	6.93	13,194	2,157
October	5.92	12,001	1,962
November	4.98	10,020	1,638
December	4.42	9,597	1,569
Annual	6.16	149,002	\$ 24,360

Location and Station Identification

Requested Location	chase avenue el cajon ca
Weather Data Source	Lat, Lon: 32.77, -116.94 0.4 mi
Latitude	32.77° N
Longitude	116.94° W

PV System Specifications (Residential)

DC System Size	90 kW
Module Type	Standard
Array Type	Fixed (roof mount)
Array Tilt	20°
Array Azimuth	180°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.164 \$/kWh
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Performance Metrics

Capacity Factor	18.9%
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ATTACHMENT F

Trip Mile Reduction Memo



MEMORANDUM

To: Jerry Keough

From: Leo Espelet, P.E., T.E.
Kimley-Horn and Associates, Inc.

Date: May 24th, 2019

Subject: Liberty Charter High School - Current Student Enrollment

The following are exhibits illustrating the current student enrollment by Zip Code for all Literacy First Charter Schools campuses. The data was broken down by Elementary, Middle and High School levels.

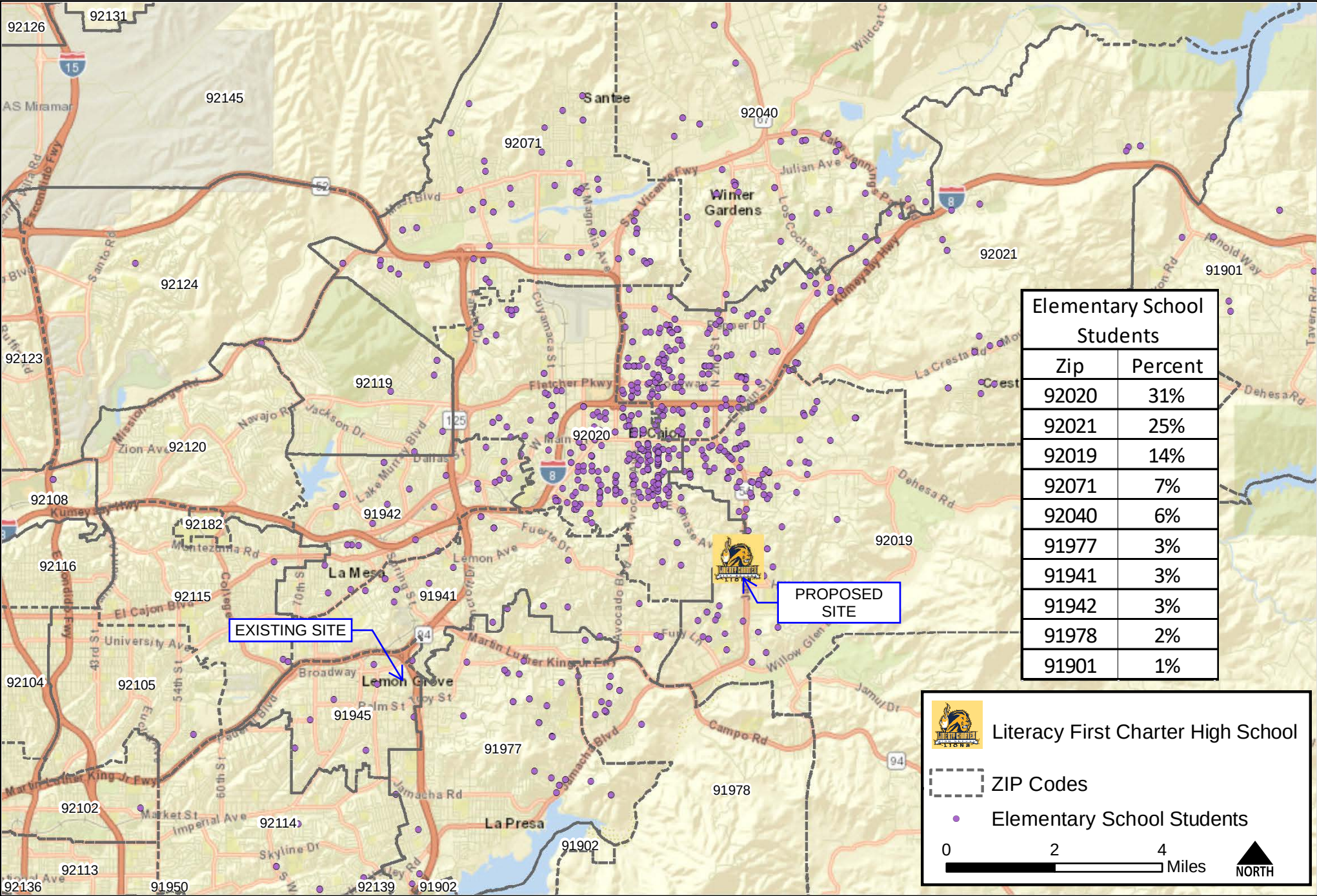
Table 1 illustrates the summary of a potential Vehicle Miles Travel (VMT) changed based on the relocation of the existing site from its current location in Lemon Grove (Zip Code 91945) to the proposed location (Zip Code 92020).

Table 1 - Estimated VMT analysis based on existing Student Population

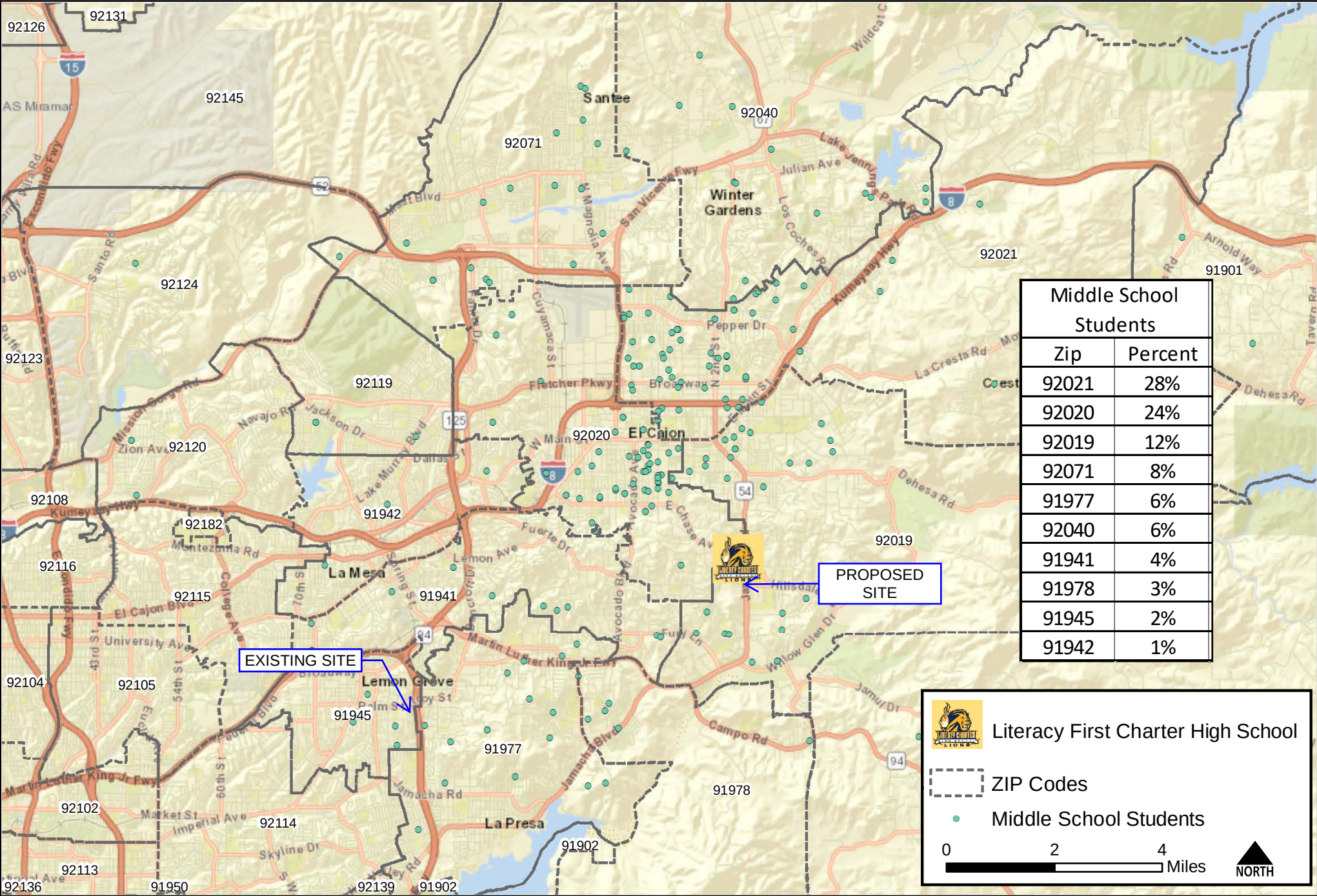
Existing School Level	% of students with estimated reduction on VMT	% of students with approximately equal VMT	% of students with estimated increase on VMT
High School	32%	15%	49%
Middle School	73%	13%	14%
Elementary School	79%	13%	9%

As shown in **Table 1**, based on the existing High School student population, approximately 49% of the students would have a larger driving distance compare to 32% that would have a shorter driving distance. However, when the future student population is evaluated (Existing Middle School and Elementary School students), the percentage of students with a potential shorter driving distance increases to 73% and 79%, respectively. The analysis shows that the relocation of the High School site would bring a significant reduction on VMT based on the existing population of Middle and Elementary School students that would be likely to attend the High School in the upcoming years.

STUDENT DISTRIBUTION



STUDENT DISTRIBUTION



STUDENT DISTRIBUTION

