Appendix A:
Air Quality, Greenhouse Gas Emissions, Energy, and Noise Supporting Information

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A.1 - Air Quality, Greenhouse Gas Report

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AIR QUALITY, ENERGY, AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

WEST BROADWAY TOWNHOMES PROJECT

CITY OF ANAHEIM

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March 4, 2022

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
Cf_4	tetrafluoromethane
C_2F_6	hexafluoroethane
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
City	City of Anaheim
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
GHG	Greenhouse gas
GWP	Global warming potential
HAP	Hazardous Air Pollutants
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
kWhr	kilowatt-hour
LCFS	Low Carbon Fuel Standard

LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
OPR	Office of Planning and Research
Pfc	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality, Energy, and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality, energy, and GHG emissions impacts associated with the proposed West Broadway Townhomes project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the energy conservation regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality, energy, and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality, energy, and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable energy and GHG emissions reduction plans and policies.

1.2 Site Locations and Study Area

The project site is located in the City of Anaheim (City) at 1661 and 1673 West Broadway. The approximately 1.55-acre project site currently contains three office buildings that total 14,144 square feet and associated driveways and parking lots. The project site is bounded by multifamily residential uses to the north, commercial uses to the west and east and W Broadway and multifamily residential uses to the south. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are residents at the multifamily homes located as near as 50 feet north of the project site. The nearest school is Loara Elementary School, which is located as near as 135 feet east of the project site.

1.3 Proposed Project Description

The proposed project would consist of demolition of the existing office buildings and associated driveways and parking lots and construction of five three-story residential buildings that would contain a total of 34 townhomes, onsite roadways, parking spaces, walkways, common space, and landscaping. The proposed project would have 100 onsite parking spaces, consisting of 32 open parking spaces and 68 garage spaces. The proposed site plan is shown in Figure 2.

1.4 Executive Summary

Standard Air Quality, Energy, and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable, but not limited to the proposed project.

- Rule 402 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 403 Fugitive Dust – Controls the emissions of fugitive dust;
- Rules 1108 and 1108.1 Cutback and Emulsified Asphalt – Controls the VOC content in asphalt;
- Rule 1113 Architectural Coatings – Controls the VOC content in paints and solvents;
- Rule 1143 Paint Thinners – Controls the VOC content in paint thinners; and
- Rule 1403 Asbestos Removal – Provides procedures for asbestos removal from buildings.

State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets;
- CCR Title 24 Part 6 – California Building Energy Standards; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality, energy, and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

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?

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

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

Less than significant impact.

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;

Less than significant impact.

Conflict with or obstruct a state or local plan for renewable energy;

Less than significant impact.

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

Less than significant impact.

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

Less than significant impact.

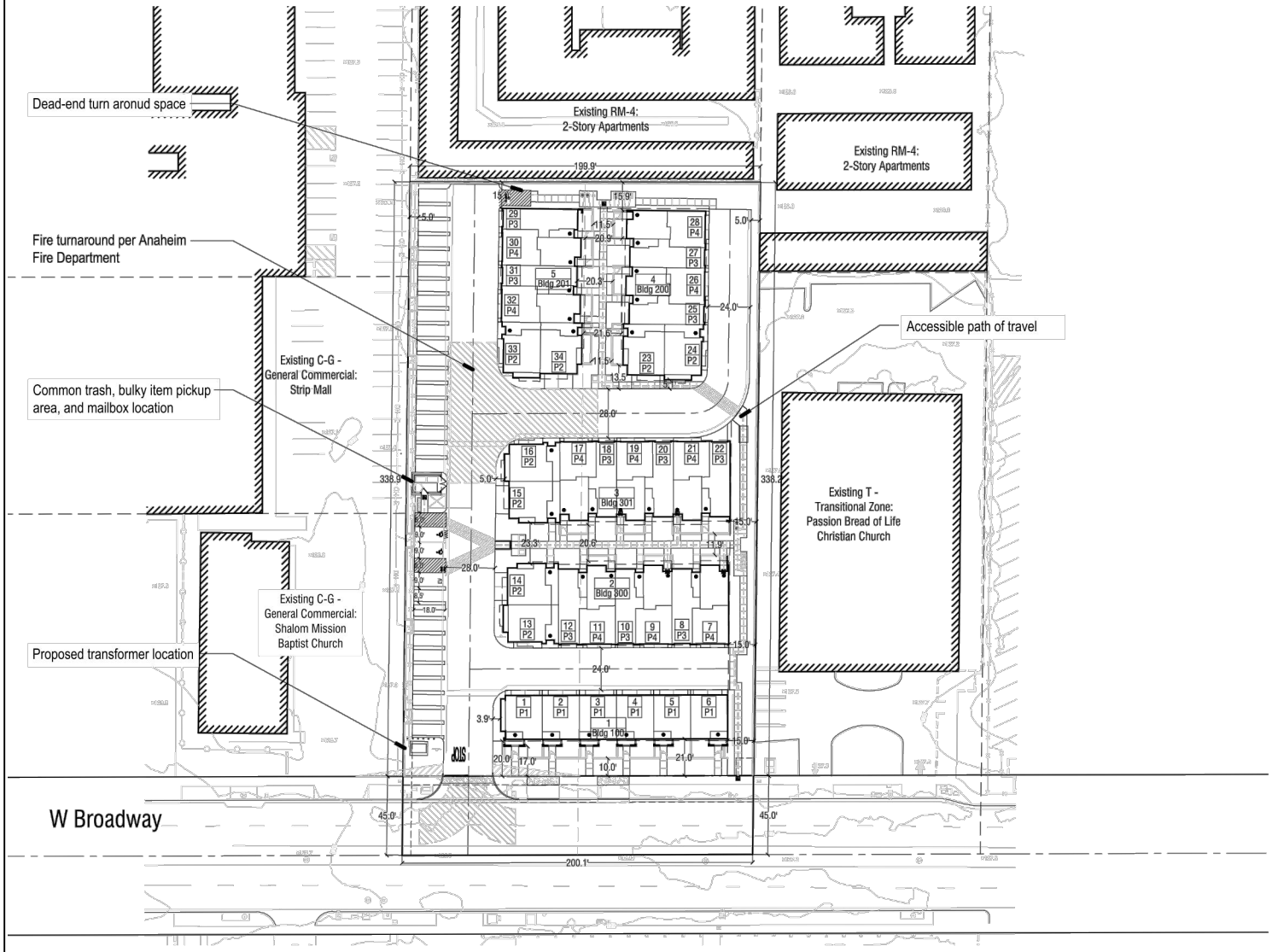
1.5 Mitigation Measures for the Proposed Project

This analysis found that implementation of the State and SCAQMD air quality, energy, and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, energy, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality, energy, and GHG emissions.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



Project Summary

Total Site Area: ± 1.55 Acres (± 67,693 SF)

Total Units: 34 Homes
- (6) Plan 1: ± 1,062 SF, 2 Bedroom, 2.5 Bath
- (4) Plan 2a: ± 1,342 SF, 2 Bedroom, 2.5 Bath, Loft
- (4) Plan 2b: ± 1,342 SF, 3 Bedroom, 2.5 Bath
- (10) Plan 3: ± 1,317 SF, 3 Bedroom, 3 Bath
- (10) Plan 4: ± 1,633 SF, 4 Bedroom, 4 Bath, Opt. Den

Density: 21.93 Homes per Acre

Parking:

Required: 100 Spaces (2.94 spaces per home)
- (10) 2 Bedroom x 2.25 Spaces = 22.5 Spaces
- (14) 3 Bedroom x 3.0 Spaces = 42 Spaces
- (10) 4 Bedroom x 3.5 Spaces = 35 Spaces

Provided: 100 Spaces (2.94 spaces per home)
- Garage: 68 Spaces
- Head In: 30 Spaces (8.5' x 18'; includes 1 Future EV space)
- ADA: 2 Spaces (9' x 18')

Open Space:

Required: 9,350 SF Total (275 SF per home)
- Common: xx SF (10' min. dim.)
- Private: xx SF (10' min. dim. ground, 7' min. dim deck)

Provided: 9,525 SF Total (± 280 per home)
- Common: 7,544 SF (10' Min. Dimension)
- Private: 1,981 SF
  - Ground: 1,281 SF (10' Min. Dimension)
  - Deck: 700 SF (7' Min. Dimension)

Lot Coverage: 23,084 SF (34.1% of site)

Zoning Summary

Existing General Plan: Office - Low
Proposed General Plan: Mid Density

Existing Zoning: C-G - General Commercial
Proposed Zoning: RM-3.5 - Multiple-Family Residential

Max. Density: 27 Homes per Acre

Building Setbacks: Front Yard: 20'
Interior Side Yard: 15'
Street Side Yard: 15'
Rear Yard: 15'

Building Separation: Varies

Max. Building Height: 40' and 3 Stories

Max. Lot Coverage: 50%

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

SOURCE: William Hezmalhalch Architects, Inc.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of: ozone, nitrogen oxides (NOx), CO, sulfur oxides (Sox), lead, and particulate matter (PM). The ozone precursors consist of NO_x and VOC. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

Nitrogen Oxides

NOx is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air, instead it is created by a chemical reaction between NOx and VOCs in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves,

gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

SOx gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

PM is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) that are also known as *Fine Particulate Matter* have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as VOCs (also

referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of ozone and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, TACs are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release

asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 70 miles east of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

In addition to naturally occurring asbestos, asbestos was used extensively in building construction from the early 1940s through the 1970s as highly-effective and inexpensive fire-retardant material and thermal and acoustic insulator. Asbestos is most commonly found as thermal insulation on pipes, but also may be found in certain types of floor and ceiling tiles. There are two types of asbestos: “friable” and "non-friable.” Friable asbestos generally contains more than 1 percent asbestos by weight or area, and can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand, which releases fibers. Non friable asbestos generally contains more than 1 percent asbestos but cannot be pulverized under hand pressure and generally does not release asbestos fibers. The analysis of asbestos from demolition of the existing structures is provided below in Section 10.4.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric GHGs, play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e). As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in CARB's 2014 Scoping Plan Update and the CalEEMod Model Version 2020.4.0 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:

[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2020.4.0),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.3 Greenhouse Gas Emissions Inventory

According to the Carbon Dioxide Information Analysis Center[1], 9,855 million metric tons (MMT) of CO_2e emissions were created globally in the year 2014. According to the Environmental Protection Agency (EPA), the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use[2].

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2019,* prepared by EPA, in 2019 total U.S. GHG emissions were 6,558 million metric tons (MMT) of CO_2e emissions. Total U.S. emissions have increased by 4 percent between 1990 and 2016 and GHG emissions decreased by 13 percent between 2005 and 2019. The recent decrease in GHG emissions was a result of multiple factors, including population, economic growth, energy markets, and technological changes the include energy efficiency and energy fuel choices. Between 2018 and 2019, GHG emissions decreased by almost 2 percent due to multiple factors, including a one percent decrease in total energy use.

According to *California Greenhouse Gas Emissions for 2000 to 2019 Trends of Emissions and Other Indicators*, prepared by CARB, July 28, 2021, the State of California created 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The 2019 emissions were 7.2 $MMTCO_2e$ lower than 2018 levels and almost 13 $MMTCO_2e$ below the State adopted year 2020 GHG limit of 431 $MMTCO_2e$. The breakdown of California GHG emissions by sector consists of: 39.7 percent from transportation; 21.1 percent from industrial; 14.1 percent from electricity generation; 7.6 percent from agriculture; 10.5 percent from residential and commercial buildings; 4.9 percent from high global warming potential sources, and 2.1 percent from waste.

1 Obtained from: https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html
2 Obtained from: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The EPA was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone and PM2.5 and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for CO, PM10, SO_2, and NO_2.

Table C – South Coast Air Basin Attainment Status

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
1-Hour Ozone[c)]	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[d)]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	8/3/2038
	NAAQS	2015 8-Hour (0.070 ppm)	Pending – Expect Nonattainment (Extreme)	Pending (beyond 2032)
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
				(attained)
NO_2[e)]	NAAQS	2010 1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO_2[f)]	NAAQS	2010 1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	1971 24-Hour (0.14 ppm) 1971 Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-hour (150 µg/m^3)	Attainment (Maintenance)[g)]	7/26/2013 (attained)
	CAAQS	24-hour (50 µg/m^3) Annual (20 µg/m^3)	Nonattainment	N/A
PM2.5[h)]	NAAQS	2006 24-Hour (35 µg/m^3)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m^3)	Attainment (final determination pending)	8/24/2016 (attained 2013)
	NAAQS	2012 Annual (12.0 µg/m^3)	Nonattainment (Moderate)	12/31/2025
	CAAQS	Annual (12.0 µg/m^3)	Nonattainment	N/A
Lead[i)]	NAAQS	2008 3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial) (Attainment determination requested)	12/31/2015

Source: SCAQMD, February 2016

Notes:

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration

c) The 1979 1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm. Effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour O_3 NAAQS (0.08 ppm) was revoked in the 2008 O_3 implementation rule, effective 4/6/15;there are continuing obligations under the revoked 1997 and revised 2008 O_3 until they are attained.

e) New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO_2 standard retained

f) The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.

g) Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.

h) The attainment deadline for the 2006 24-Hour PM2.5 NAAQS was 12/31/15 for the former "moderate" classification; EPA approved reclassification to "serious", effective 2/12/16 with an attainment deadline of 12/31/19; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m^3; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m^3) and 24-hour PM2.5 (65 µg/m^3) NAAQS, effective August 24, 2016

i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data; attainment re-designation request pending.

In 2015, one or more stations in the Air Basin exceeded the most current federal standards on a total of 146 days (40 percent of the year), including: 8-hour ozone (113 days over 2015 ozone NAAQS), 24-hour PM2.5 (30 days, including near-road sites; 25 days for ambient sites only), PM10 (2 days), and NO_2 (1 day). Despite substantial improvement in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other area in the United States. Seven of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in

2015 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties (SCAQMD, 2016).

PM2.5 levels in the Air Basin have improved significantly in recent years. By 2013 and again in 2014 and 2015, there were no stations measuring PM2.5 in the Air Basin that violated the former 1997 annual PM2.5 NAAQS (15.0 μg/m^3) for the 3-year design value period. On July 25, 2016 the EPA finalized a determination that the Basin attained the 1997 annual (15.0 μg/m^3) and 24-hour PM2.5 (65 μg/m^3) NAAQS, effective August 24, 2016. Of the 17 federal PM2.5 monitors at ambient stations in the Air Basin for the 2013-2015 period, five stations had design values over the current 2012 annual PM2.5 NAAQS (12.0 μg/m^3), including: Mira Loma (Air Basin maximum at 14.1 μg/m^3), Rubidoux, Fontana, Ontario, Central Los Angeles, and Compton. For the 24-hour PM2.5 NAAQS (35.0 μg/m^3) there were 14 stations in the Air Basin in 2015 that had one or more daily exceedances of the standard, with a combined total of 25 days over that standard in the Air Basin. While it was previously anticipated that the Air Basin's 24-hour PM2.5 NAAQS would be attained by 2015, this did not occur based on the data for 2013 through 2015. The higher number of days exceeding the 24-hour PM2.5 NAAQS over what was expected is largely attributed to the severe drought conditions over this period that allowed for more stagnant conditions in the Air Basin with multi-day buildups of higher PM2.5 concentrations. This was caused by the lack of storm-related dispersion and rain-out of PM and its precursors (SCAQMD, 2016).

The Air Basin is currently in attainment for the federal standards for SO_2, CO, NO_2, and PM10 and the Orange County portion of the Air Basin is currently in attainment for the federal standards for lead. While the concentration level of the 1-hour NO_2 federal standard (100 ppb) was exceeded in the Air Basin for one day in 2015 (Long Beach- Hudson Station), the NAAQS NO_2 design value has not been exceeded. Therefore, the Air Basin remains in attainment of the NO_2 NAAQS (SCAQMD, 2016).

4.2 State – California Air Resources Board

The CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10 and PM2.5. Currently, the Air Basin is in attainment with the ambient air quality standards for CO, NO_2, SO_2, lead, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all warehouse projects in the State.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high,

intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the CARB adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce DPM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2016 Air Quality Management Plan* (2016 AQMP) was adopted by the SCAQMD Board on March 3, 2016 and was

adopted by CARB on March 23, 2017 for inclusion into the SIP. The 2016 AQMP was prepared in order to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM2.5 (12 µg/m3) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM2.5 (35 µg/m^3) by 2019 (updated from the 2012 AQMP)

In addition to meeting the above standards, the 2016 AQMP also includes revisions to the attainment demonstrations for the 1997 8-hour ozone NAAQS and the 1979 1-hour ozone NAAQS. The prior 2012 AQMP was prepared in order to demonstrate attainment with the 24-hour PM2.5 standard by 2014 through adoption of all feasible measures. The prior 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These "black box" emissions reductions represent 65 percent of the remaining NOx emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NOx control measures have been provided in the 2012 AQMP even though the primary purpose was to show compliance with 24-hour PM2.5 emissions standards.

The 2016 AQMP provides a new approach that focuses on available, proven and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities to promote reductions in GHG emissions and TAC emissions as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the CEQA. In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to residential development projects in the Air Basin.

Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

Rules 1108 and 1108.1 – Cutback and Emulsified Asphalt

Rules 1108 and 1108.1 govern the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt. This rule regulates the VOC contents of asphalt used during construction as well as any on-going maintenance during operations. Therefore, all asphalt used during construction and operation of the proposed project must comply with SCAQMD Rules 1108 and 1108.1.

Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Rule 1143 – Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

Rule 1403 – Asbestos Removal

Rule 1403 governs asbestos emissions from demolition and renovation activities. The existing structures on the project site shall be surveyed for asbestos prior to demolition activities. If asbestos is found within the existing structures, the asbestos shall be removed through utilization of the removal procedures detailed in Rule 1403.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal), adopted September 3, 2020and the *2019 Federal Transportation Improvement* Program (2019 FTIP), adopted September 2018, which addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

4.4 Local – City of Anaheim

Local jurisdictions, such as the City of Anaheim, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMPs. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

City of Anaheim General Plan

The City of Anaheim General Plan provides the following air quality-related goals and policies that are applicable to the proposed project.

Goal 8.1

Reduce locally generated emissions through improved traffic flows and construction management practices.

Policies

2) Regulate construction practices, including grading, dust suppression, chemical management, and encourage pre-determined construction routes that minimize dust and particulate matter pollution.

Goal 9.1

Reduce single-occupancy vehicle trips.

Policies

3) Encourage bicycle and pedestrian travel by improving the City's trail and bikeway master plan and by providing convenient links between the trail system and desired destinations.

5.0 ENERGY CONSERVATION MANAGEMENT

The regulatory setting related to energy conservation is primarily addressed through State and City regulations, which are discussed below.

5.1 State

Energy conservation management in the State was initiated by the 1974 Warren-Alquist State Energy Resources Conservation and Development Act that created the California Energy Resource Conservation and Development Commission (currently named California Energy Commission [CEC]), which was originally tasked with certifying new electric generating plants based on the need for the plant and the suitability of the site of the plant. In 1976 the Warren-Alquist Act was expanded to include new restrictions on nuclear generating plants, that effectively resulted in a moratorium of any new nuclear generating plants in the State. The following details specific regulations adopted by the State in order to reduce the consumption of energy.

California Code of Regulations (CCR) Title 20

On November 3, 1976 the CEC adopted the *Regulations for Appliance Efficiency Standards Relating to Refrigerators, Refrigerator-Freezers and Freezers and Air Conditioners,* which were the first energy-efficiency standards for appliances. The appliance efficiency regulations have been updated several times by the Commission and the most current version is the *2016 Appliance Efficiency Regulations*, adopted January 2017 and now includes almost all types of appliances and lamps that use electricity, natural gas as well as plumbing fixtures. The authority for the CEC to control the energy-efficiency of appliances is detailed in California Code of Regulations (CCR), Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1609.

California Code of Regulations (CCR) Title 24, Part 6

The CEC is also responsible for implementing the CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24 Part 6) that were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. On January 1, 2020 the 2019 standards went into effect, that have been designed so that the average new home built in California will now use zero-net-energy and that non-residential buildings will use about 30 percent less energy than the 2016 standards due mainly to lighting upgrades. The 2019 standards also encourage the use of battery storage and heat pump water heaters, require the more widespread use of LED lighting, as well as improve the building's thermal envelope through high performance attics, walls and windows. The 2019 standards also require improvements to ventilation systems by requiring highly efficient air filters to trap hazardous air particulates as well as improvements to kitchen ventilation systems.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Building

Standards are also updated every three years and the current version is the 2019 California Green Building Standard Code that become effective on January 1, 2020.

The CALGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2019 CALGreen Code over the prior 2016 CALGreen Code include: an alignment of building code engineering requirements with the national standards that include anchorage requirements for solar panels, provides design requirements for buildings in tsunami zones, increases Minimum Efficiency Reporting Value (MERV) for air filters from 8 to 13, increased electric vehicle charging requirements in parking areas, and sets minimum requirements for use of shade trees.

Executive Order N-79-20

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and

requires that the CEC working with CARB prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the "Pavley I" regulations started in 2009.

The second set of regulations "Pavley II" was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide.

The EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA proposed The Safer Affordable Fuel Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026 that amends the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The SAFE Vehicles Rule was published on April 30, 2020 and made effective on June 29, 2020.

5.2 Local - City of Anaheim

The applicable energy plan for the proposed project is the *City of Anaheim General Plan Green Element,* adopted May 2004. The Green Element of the General Plan establishes goals and policies aimed at preserving and enhancing energy resources. The Green Element of the General Plan was prepared to comprehensively address energy management issues in order to implement the State's legislation to decrease reliance on fossil fuels and mitigate impacts of global warming.

6.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

6.1 International

In 1988, the United Nations established the IPCC to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement and on January 21, 2021 President Biden signed an executive order rejoining the Paris Agreement.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

6.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per mega-watt hour (MWh) for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan and on June 19, 2019 the EPA replaced the Clean Power Plan with the Affordable Clean Energy rule that is anticipated to lower power sector GHG emissions by 11 million tons by the year 2030.

On April 30, 2020, the EPA and the National Highway Safety Administration published the Final Rule for the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

6.3 State

The CARB has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct

regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

Executive Order N-79-20

EO N-79-20 establish targets for when all new vehicles and equipment are zero-emission and is described in more detail above in Section 5.1 under Energy Conservation Management.

California Code of Regulations (CCR) Title 24, Part 6

The Title 24 Part 6 standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the Title 24 Part 6 building standards would also reduce GHG emissions, since as detailed above in Section 3.3 Greenhouse Gas Emissions Inventory, energy use for residential and commercial buildings creates 9.7 percent of the GHG emissions in the State.

California Code of Regulations (CCR) Title 24, Part 11

The CalGreen Building standards have been developed by the CEC primarily for energy conservation and is described in more detail above in Section 5.1 under Energy Conservation Management. It should be noted that implementation of the CalGreen Building standards would also reduce GHG emissions, since as detailed above under Title 23, Part 6, energy usage from buildings creates 9.7 percent of GHG emissions in the State.

Senate Bill 100

SB 100 requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-48-18 and Assembly Bill 2127

Executive Order B-48-18 and AB 2127 provides measures to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025 and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at

which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and the most current targets are detailed at: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets, which provides GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The Connect SoCal (SCAG, 2020) provides a 2035 GHG emission reduction target of 19 percent reduction over the 2005 per capita emissions levels. The Connect SoCal include new initiatives of land use, transportation and technology to meet the 2035 new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other

provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

Assembly Bill 1109

AB 1109 requires reductions in energy usage for lighting and is described in more detail above in Section 5.1 under Energy Conservation Management.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project

complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.

- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 $MMTCO_2e$. The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

Assembly Bill 1493

AB 1493 or the Pavley Bill sets tailpipe GHG emissions limits for passenger vehicles in California as well as fuel economy standards and is described in more detail above in Section 5.1 under Energy Conservation Management.

6.4 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Air Basin. To that end, as a regional agency, the SCAQMD works directly with SCAG, county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SCAQMD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the Air Basin where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures. In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group, which is described below.

<u>SCAQMD Working Group</u>

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 $MTCO_2e$ for residential uses, 1,400 $MTCO_2e$ for commercial uses, and 3,000 $MTCO_2e$ for mixed uses. An alternative annual threshold of 3,000 $MTCO_2e$ for all land use types is also proposed.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Connect SoCal and 2019 FTIP addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

6.5 Local – City of Anaheim

Local jurisdictions, such as the City of Anaheim, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The *Greenhouse Gas Reduction Plan: Sustainable Electric & Water Initiatives* (GHG Reduction Plan), prepared by the City of Anaheim Public Utilities Department, July 2015, provides targets to energy use, water conservation, photovoltaic (PV) rooftop installations, and transportation emissions. The targets provided in the GHG Reduction Plan that are applicable to the proposed project are detailed below:

<u>Power Supply Targets</u>

2020 Target

20% (480,000 $MTCO_2e$) GHG emissions reduction from 1990 baseline levels annually.

2030 Target

40% (920,000 $MTCO_2e$) GHG emissions reduction from 1990 baseline levels annually.

<u>Energy Efficiency Targets</u>

2020 Target

15 percent reduction in energy utilized by businesses and homes in Anaheim.

2030 Target

30 percent reduction in energy utilized by businesses and homes in Anaheim.

<u>Water Conservation Targets</u>

2020 Target

20 percent reduction in water utilized by businesses and homes in Anaheim.

2030 Target

25 percent reduction in water utilized by businesses and homes in Anaheim.

Photovoltaic (PV) Targets

2020 Target

27,000 kW of PV systems installed.

2030 Target

37,000 kW of PV systems installed.

Vehicle Emissions Targets

2020 Target

6,000 $MTCO_2e$ reduction in vehicle emissions.

2030 Target

20,000 $MTCO_2e$ reduction in vehicle emissions.

7.0 ATMOSPHERIC SETTING

7.1 South Coast Air Basin

The project site is located within central Orange County, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

7.2 Local Climate

Orange County is located on a coastal plain with connecting broad valleys and low hills to the east. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern.

Although the Air Basin has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the Air Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent and low stratus clouds, often referred to as "high fog" are a characteristic climate feature.

Winds are an important parameter in characterizing the air quality environment of a project site because they determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in Orange County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean. These winds are usually the strongest in the dry summer months. Nighttime winds in Orange County are a result mainly from the drainage of cool air off of the mountains to the east and they occur more often during the winter months and are usually lighter than the daytime winds. Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day.

During the winter and fall months, surface high-pressure systems north of the Air Basin combined with other meteorological conditions, can result in very strong winds, called "Santa Ana Winds", from the northeast. These winds normally have durations of a few days before predominant meteorological conditions are reestablished. The highest wind speed typically occurs during the afternoon due to daytime thermal convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. It is not uncommon to have sustained winds of 60 miles per hour with higher gusts during a Santa Ana Wind event.

The temperature and precipitation levels for the Anaheim Monitoring Station is shown below in Table D. Table D shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table D – Monthly Climate Data

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	70.0	47.5	3.34
February	70.0	48.2	3.47
March	72.4	50.4	1.86
April	74.7	52.8	0.83
May	77.1	57.3	0.53
June	80.1	60.5	0.15
July	85.2	64.2	0.07
August	87.1	64.5	0.01
September	86.5	62.7	0.10
October	81.2	57.7	0.72
November	75.4	51.8	0.99
December	69.7	46.9	2.02
Annual	**77.4**	**55.4**	**14.09**

Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0192

7.3 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remain unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in air monitoring area 17, which covers the central portion of Orange County. The nearest air monitoring station to the project site is the Anaheim-Pampas Lane Monitoring Station (Anaheim Station), which is located approximately two miles northwest of the project site at 1630 Pampas Lane, Anaheim. The monitoring data is presented in Table E and shows the most recent three years of monitoring data from CARB.

Table E – Local Area Air Quality Monitoring Summary

Pollutant 1 (Standard)	Year[1] 2018	2019	2020
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.112	0.096	0.142
Days > CAAQS (0.09 ppm)	**1**	**1**	**6**
Maximum 8-Hour Concentration (ppm)	0.071	0.082	0.097
Days > NAAQS (0.070 ppm)	**1**	**1**	**15**
Days > CAAQs (0.070 ppm)	**1**	**1**	**16**
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppb)	66.0	59.4	70.9
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour National Measurement (ug/m^3)	94.6	127.6	74.8
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	**2**	**4**	**5**
Annual Arithmetic Mean (AAM) (ug/m^3)	27.9	24.6	30.8
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour National Measurement (ug/m^3)	63.1	36.1	60.2
Days > NAAQS (35 ug/m^3)	**7**	**4**	**12**
Annual Arithmetic Mean (AAM) (ug/m^3)	11.4	9.3	12.2
Annual > NAAQS and CAAQS (12 ug/m^3)	ND	No	No

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the Anaheim Station.
Source: http://www.arb.ca.gov/adam/

Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded between one and six days each year at the Anaheim Station. The State 8-hour ozone standard has been exceeded between one and 16 days each year over the last three years at the Anaheim Station. The Federal 8-hour ozone standard has been exceeded between one and 15 days each year over the last three years at the Anaheim Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the

ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The Anaheim Station did not record an exceedance of either the Federal or State 1-hour NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between two and five days each year over the past three years at the Anaheim Station. Over the past three years the Federal 24-hour standard for PM10 has not been exceeded at the Anaheim Station. The annual PM10 concentration at the Anaheim Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between four and 12 days each year over the past three years at the Anaheim Station. The annual PM2.5 concentrations at the Anaheim Station has not exceeded either the State or Federal standard for the past three years. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

7.4 Toxic Air Contaminant Levels in the Air Basin

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the MATES V study (SCAQMD, 2021), the project site has an estimated cancer risk of 448 per million persons chance of cancer in the vicinity of the project site. In comparison, the average cancer risk for the Air Basin is 455 per million persons. The MATES V study that monitored air toxins between May 1, 2018 to April 30, 2019 found that cancer risk from air toxics has declined significantly in the Air Basin with a 40 percent decrease in cancer risk since the monitoring for the MATES IV study that occurred between July 1, 2012 and June 30, 2013 and an 84 percent decrease in cancer risk since the monitoring for the MATES II study that occurred between April 1, 1998 and March 31, 1999.

The MATES V study also analyzed impacts specific to the communities experiencing environmental injustices (EJ communities) that were evaluated using the Senate Bill 535 definition of disadvantaged communities, which found that between MATES IV and MATES V, the cancer risk from air toxics decreased by 57 percent in EJ communities overall, compared to a 53 percent reduction in non-EJ communities.

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges around 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet

and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

8.0 MODELING PARAMETERS AND ASSUMPTIONS

8.1 CalEEMod Model Input Parameters

The criteria air pollution and GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2020.4.0. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for Orange County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of Orange County, a Climate Zone of 8, utility company of City of Anaheim Public Utilities Department and an opening year of 2024 was utilized in this analysis. In addition, the EMFAC off-model adjustment factors for gasoline light duty vehicle to account for the SAFE Vehicle rule was selected in the CalEEMod model run.

Land Use Parameters

would consist of demolition of the existing office buildings and associated driveways and parking lots and construction of five three-story residential buildings that would contain a total of 65,000 square feet with 34 townhomes, onsite roadways, parking spaces, walkways, common space, and landscaping. The proposed project would have 100 onsite parking spaces, consisting of 32 open parking spaces and 68 garage spaces. It should be noted that the garage spaces have been analyzed as part of the townhomes. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving[3] (square feet)
Townhomes	Condo/Townhouse	34 DU	0.90	65,000
Onsite Roads and Parking Spaces	Other Asphalt Surfaces	0.65 AC	0.65	28,314

Notes:
[1] DU = Dwelling unit; AC = Acre.
[2] Lot acreage calculated based on the total project site of 1.55 acres.
[3] Building/Paving square feet represent area where architectural coatings will be applied. Townhomes square footage obtained from Architect and Paved area based on CalEEMod default values.

Construction Parameters

Construction of the proposed project is anticipated to start around May 2022 and would be completed in 18 to 24 months. Since the CalEEMod default construction schedule for the proposed project is 11 months, each phase of construction was extended by 40 percent in the CalEEMod model to match the construction schedule provided by the applicant. The construction-related GHG emissions were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The phases of construction activities that have been analyzed are detailed below and include: 1) Demolition, 2) Site Preparation, 3) Grading, 4) Building construction, 5) Paving, and 6) Application of architectural coatings.

Demolition

The demolition phase would consist of demolishing the existing three office buildings that total 14,144 square feet and associated driveways and parking lots on the project site. The total existing pavement was found to cover approximately 48,000 square feet of the project. Based on an average of 4-inches thick and a weight of 145 pounds per square foot, results in 1,160 tons of pavement that would be removed from the project site. For the existing three structures, CalEEMod utilizes a factor of 0.046 tons of debris of building material per building square foot. This results in 651 tons of debris that would be generated from demolition of the 14,144 square feet of existing building space. Therefore, the combined demolition of the structures and pavement area would require the removal of 1,811 tons of debris that would be exported from the site and would require a total of 179 haul truck trips (average 6.4 haul truck trips per day over 28 workdays for demolition phase).

The demolition phase has been modeled as starting in May 2022 and occurring over 28 workdays. The demolition activities would require 13 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the demolition phase. The onsite equipment would consist of one concrete/industrial saw, one rubber-tired dozer, and three of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation would occur after completion of the demolition phase and was modeled as occurring over three workdays. The site preparation activities would require eight worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the site preparation phase. The onsite equipment would consist of one grader, one rubber-tired dozer, and one of either a tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix. The mitigation of "water all exposed areas three times per day" was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Grading

The grading phase was modeled as starting after completion of the site preparation phase and occurring over six workdays. Grading of the project site would require 400 cubic yards of dirt to be imported to the project site. The import of dirt would require a total of 40 haul truck trips (average 6.7 haul truck trips per day over six workdays for the grading phase).

The onsite equipment utilized during the grading phase was based on the CalEEMod default equipment list of one grader, one rubber-tired dozer, and two of either tractors, loaders, or backhoes. The grading activities would also generate 10 automobile trips per day for the workers. In order to account for water truck emissions, six daily vendor truck trips were added to the grading phase. The mitigation of water all exposed areas three times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Building Construction

The building construction would occur after the completion of the grading phase and was modeled as occurring over 278 workdays (12.5 months). The building construction phase would generate 36 worker trips and 8 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, one forklift, one generator, three welders, and one of either a tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix.

Paving

The paving phase would consist of paving the onsite roads and parking areas, sidewalks and hardscapes. The paving phase was modeled as occurring after completion of the building construction phase and occurring over 14 workdays. The paving phase would generate 13 worker trips per day. The onsite equipment would consist of the simultaneous operation of one cement mixer, one paver, one paving equipment, one roller, and one of either a tractor, loader, or backhoe, which is based on the CalEEMod default equipment mix.

Architectural Coating

The application of architectural coatings was modeled as occurring after the completion of the paving phase and occurring over 14 workdays. The architectural coating phase was modeled based on covering 68,850 square feet of residential interior area, 22,950 square feet of residential exterior area, and 1,699 square feet of parking area. The architectural coating phase would generate 7 worker trips per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

Operational Emissions Modeling

The operations-related criteria air pollutant emissions and GHG emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above and the parameters entered for each operational source is described below.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. The weekday daily vehicle trip rates associated with the proposed project have been set to match the 5.44 daily trips per home rate provided in the *1661 W Broadway Traffic Impact Analysis* (Traffic Analysis), prepared by TJW Engineering, Inc., October 19, 2021. Since the Traffic Study did not provide Saturday or Sunday daily trip rates for the proposed project, the default CalEEMod daily trip generation rates of: 8.14 per home on Saturdays; and 6.28 per home on Sundays were utilized.

The CalEEMod model provides the selection of "mitigation" to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this "mitigation" may represent current conditions, such as development that is in close proximity to an existing bus stop, where a project built at such location, would create less vehicle trips and associated emissions than a project that was not built in close proximity to an existing bus stop. The mobile source emissions analysis included the CalEEMod mitigation of: (1) Improved pedestrian network onsite and connecting offsite, since the project site has sidewalks adjacent to West Broadway; and (2) Increase transit accessibility was also selected in order to account for the Euclid-Broadway OCTA bus stop that is located 350 feet west of the project site.

Area Sources

Area sources include emissions from consumer products, landscape equipment, hearths and architectural coatings. The area source emissions were based on the on-going use of the proposed project in the CalEEMod model. According to the proposed project plans, no woodstoves or fireplaces will be constructed on the project site, as such woodstoves and fireplaces were set to zero in CalEEMod. No other changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The energy usage was based on the ongoing use of the proposed project in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

The 2019 Title 24, Part 6 building energy efficiency standards went into effect January 1, 2020 and have been developed so that the average new home built in California will have zero-net-energy use. The 2019 Title 24 Part 6 standards also now require all new homes to install rooftop photovoltaic systems based on Section 150.1-C from: https://www.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf

It should be noted that the Title 24 Report for the proposed project has not yet been prepared so the exact number of solar panels to be installed on the project site has not yet been calculated. However, Exception 4 to Section 150.1-c states that all three-story homes shall provide a minimum of 0.8 Watt DC of solar panels per square foot of conditioned floor area. According to the Architectural Plans, the proposed project would have 54,116 square feet of conditioned floor area, which would result in the installation of 43.3 kilowatts of photovoltaic solar panels. Since the CalEEMod model requires that the total kilowatt-hours per year generated by the solar panels be entered into the model, the 43.3 kilowatts of solar panels was multiplied by 8 hours, to provide a conservative average hours per day of sunlight that the solar panels will generate electricity and then divided by 1.2 to account for the loss associated with converting the direct current (DC) power from the solar panels to the alternating current (AC) power on the electrical grid and then multiplying by 365 days, which resulted in the proposed solar panels generating 105,346 kilowatt-hours per year that was entered into the CalEEMod model.

Solid Waste

Waste includes the GHG emissions associated with the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. The analysis was based on the default CalEEMod waste generation rate of 16 tons of solid waste per year from the proposed project. No changes were made to the default solid waste parameters or mitigation measures in the CalEEMod model.

The CalEEMod "mitigation" of a 50 percent reduction in landfill waste was selected to account for implementation of AB 341 that provides strategies to reduce, recycle or compost solid waste by 75 percent by 2020. Only 50 percent was selected, since AB 341 builds upon the waste reduction measures of SB 939 and 1374 and therefore, it was assumed approximately 25 percent of the waste reduction target has already been accounted for in the CalEEMod model.

Water and Wastewater

Water includes the water used for the interior of the buildings as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. The analysis was

based on the default CalEEMod water usage rate of 2,215,237 gallons per year of indoor water use and 1,396,562 gallons per year of outdoor water use. No changes were made to the default water and wastewater parameters in the CalEEMod model.

The CalEEMod "mitigation" of the use of low flow faucets, showers, and toilets and use of smart irrigation system controllers were selected to account for the implementation of the 2016 CCR Title 24 Part 11 (CalGreen) requirements.

8.2 Energy Use Calculations

The proposed project is anticipated to consume energy during both construction and operation of the proposed project and the parameters utilized to calculate energy use from construction and operation of the proposed project are detailed separately below.

Construction-Related Energy Use

Construction of the proposed project is anticipated to use energy in the forms of petroleum fuel for both off-road equipment as well as from the transport of workers and materials to and from the project site and the calculations for each source are described below.

Off-Road Construction Equipment

The off-road construction equipment fuel usage was calculated through use of the CalEEMod model's default off-road equipment assumptions detailed above in Section 8.1. For each piece of off-road equipment, the fuel usage was calculated through use of the *2017 Off-road Diesel Emission Factors* spreadsheet, prepared by CARB (https://ww3.arb.ca.gov/msei/ordiesel.htm). The Spreadsheet provides the following formula to calculate fuel usage from off-road equipment:

> Fuel Used = Load Factor x Horsepower x Total Operational Hours x BSFC / Unit Conversion
>
> Where:
>
> Load Factor - Obtained from CalEEMod default values
>
> Horsepower – Obtained from CalEEMod default values
>
> Total Operational Hours – Calculated by multiplying CalEEMod default daily hours by CalEEMod default number of working days for each phase of construction
>
> BSFC – Brake Specific Fuel Consumption (pounds per horsepower-hour) – If less than 100 Horsepower = 0.408, if greater than 100 Horsepower = 0.367
>
> Unit Conversion – Converts pounds to gallons = 7.109

Table G shows the off-road construction equipment fuel calculations based on the above formula.

Table G – Off-Road Equipment and Fuel Consumption from Construction of the Proposed Project

Equipment Type	Equipment Quantity	Horse-power	Load Factor	Operating Hours per Day	Total Operational Hours[1]	Fuel Used (gallons)
Demolition						
Concrete/Industrial Saws	1	81	0.73	8	224	760
Rubber Tired Dozers	1	247	0.40	8	224	1,143
Tractors/Loaders/Backhoes	3	97	0.37	8	672	1,384
Site Preparation						
Grader	1	187	0.41	8	24	95
Rubber-Tired Dozer	1	247	0.4	7	21	107
Tractors/Loaders/Backhoes	1	97	0.37	8	24	49
Grading						
Grader	1	187	0.41	8	48	190
Rubber-Tired Dozer	1	247	0.4	8	48	245
Tractors/Loaders/Backhoes	2	97	0.37	7	84	173
Building Construction						
Cranes	1	231	0.29	6	1,668	5,769
Forklifts	1	89	0.2	6	1,668	1,704
Generators	1	84	0.74	8	2,224	7,934
Tractors/Loaders/Backhoes	1	97	0.37	6	1,668	3,436
Welders	3	46	0.45	8	6,672	7,926
Paving						
Cement & Mortar Mixer	1	9	0.56	6	84	24
Paver	1	130	0.42	6	84	237
Paving Equipment	1	132	0.36	8	112	275
Roller	1	80	0.38	7	98	171
Tractors/Loaders/ Backhoes	1	97	0.37	8	112	231
Architectural Coatings						
Air Compressor	1	78	0.48	6	84	180
	Total Off-Road Equipment Fuel Used during Construction (gallons)					**32,033**

Notes:
[1] Based on: 28 days for Demolition; 3 days for Site Preparation, 6 days for Grading; 278 days for Building Construction; 14 days for Paving; and 14 days for Painting.
Source: CalEEMod Version 2020.4.0 (see Appendix A); CARB, 2017.

Table G shows that the off-road equipment utilized during construction of the proposed project would consume 32,033 gallons of fuel.

On-Road Construction-Related Vehicle Trips

The on-road construction-related vehicle trips fuel usage was calculated through use of the construction vehicle trip assumptions from the CalEEMod model run as detailed above in Section 8.1. The calculated total construction miles was then divided by the fleet average for all of Southern California miles per gallon rates for the year 2022 calculated through use of the EMFAC2017 model (https://www.arb.ca.gov/emfac/2017/) and the EMFAC2017 model printouts are shown in Appendix B. The worker trips were based on the entire fleet average miles per gallon rate for gasoline powered vehicles and the vendor trips were based on the Heavy-Heavy Duty Truck (HHDT), Medium Duty Vehicle

(MDV), and Medium Heavy-Duty Vehicle (MHDV) fleet average miles per gallon rate for diesel-powered vehicles. Table H shows the on-road construction vehicle trips modeled in CalEEMod and the fuel usage calculations.

Table H – On-Road Vehicle Trips and Fuel Consumption from Construction of the Proposed Project

Vehicle Trip Types	Daily Trips	Trip Length (miles)	Total Miles per Day	Total Miles per Phase[1]	Fleet Average Miles per Gallon[2]	Fuel Used (gallons)
Demolition						
Worker Trips	13	14.7	191	5,351	26.0	206
Vendor Truck Trips	6	6.9	41	1,159	8.2	141
Haul Truck Trips	6.4	20	128	3,580	8.2	435
Site Preparation						
Worker Trips	8	14.7	118	353	26.0	14
Vendor Truck Trips	6	6.9	41	124	8.2	15
Grading						
Worker Trips	10	14.7	147	882	26.0	34
Vendor Truck Trips	6	6.9	41	248	8.2	30
Haul Truck Trips	6.7	20	133	800	8.2	97
Building Construction						
Worker Trips	36	14.7	529	147,118	26.0	5,661
Vendor Truck Trips	8	6.9	55	15,346	8.2	1,866
Paving						
Worker Trips	13	14.7	191	2,675	26.0	103
Architectural Coatings						
Worker Trips	7	14.7	103	1,441	26.0	55
		Total Fuel Used from On-Road Construction Vehicles (gallons)				**7,875**

Notes:
[1] Based on: 28 days for Demolition; 3 days for Site Preparation, 6 days for Grading; 278 days for Building Construction; 14 days for Paving; and 14 days for Painting.
[2] From EMFAC 2017 model (see Appendix B). Worker Trips based on entire fleet of gasoline vehicles and Vendor Trips based on only truck fleet of diesel vehicles.
Source: CalEEMod Version 2020.4.0; CARB, 2018.

Table H shows that the on-road construction-related vehicle trips would consume 7,875 gallons of fuel and as detailed above, Table G shows that the off-road construction equipment would consume 32,033 gallons of fuel. This would result in the total consumption of 39,908 gallons of petroleum fuel from construction of the proposed project.

Operations-Related Energy Use

The operation of the proposed project is anticipated to use energy in the forms of petroleum fuel, electricity, and natural gas, and the calculations for each source are described below.

Operational Petroleum Fuel

The on-road operations-related vehicle trips fuel usage was calculated through use of the total annual vehicle miles traveled assumptions from the CalEEMod model run as detailed above in Section 8.1, which found that operation of the proposed project would generate 526,390 vehicle miles traveled per year. The calculated total operational miles were then divided by the Southern California fleet average rate of

27.50 miles per gallon, which was calculated through use of the EMFAC2017 model and based on the year 2024. The EMFAC2017 model printouts are shown in Appendix B. Based on the above calculation methodology, operational vehicle trips generated from the proposed project would consume 19,159 gallons per year.

Operational Electricity Use

The operations-related electricity usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that found the proposed townhomes will use 58,953 kilowatt hours (kWh) per year with implementation of Title 24 Part 6 requirements that require the implementation of building energy efficiency standards that include the installation of photovoltaic systems on the rooftops of the proposed homes.

Operational Natural Gas Use

The operations-related natural gas usage was calculated in the CalEEMod model run that is detailed above in Section 8.1 that found the proposed project will use 561,185 kilo British Thermal Units (kBTU) per year, which is equivalent to 561 mega-British Thermal units (MBTU) per year of natural gas.

9.0 THRESHOLDS OF SIGNIFICANCE

9.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominant pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table I.

Table I – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**	**Lead**
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

9.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. As detailed above in Section 4.1, the project site is located in Air Monitoring Area 17, which covers the central portion of Orange County. The Look-Up Tables provided in the LST Methodology include project site acreage sizes of 1-acre, 2-acres and 5-acres. Since the project site is 1.55 acres, the 1-acre and 2-acre project sites shown in the Look-Up Tables were interpolated in order to calculate the 1.55-acre threshold that has been utilized in this analysis.

The nearest offsite sensitive receptors are residents at the multifamily homes located as near as 50 feet (15 meters) north of the project site. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25-meter thresholds. Table J below shows the LSTs for NO_2, PM10 and PM2.5 for both construction and operational activities.

Table J – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Construction	100	612	5	4
Operation	100	612	2	1

Notes:

[1] The nearest offsite sensitive receptors to the project site are multi-family homes located as near as 50 feet (15 meters) north of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25-meter threshold.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one and two acres in Air Monitoring Area 17, Central Orange County.

9.3 Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to TACs, the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create TACs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

9.4 Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

9.5 Energy Conservation

The new 2018 amendments and additions to the CEQA Checklist now includes an Energy Section that analyzes the proposed project's energy consumption in order to avoid or reduce inefficient, wasteful or unnecessary consumption of energy. Since the Energy Section was just added, no state or local agencies

have adopted specific criteria or thresholds to be utilized in an energy impact analysis. However, the 2018 *Guidelines for the Implementation of the California Environmental Quality Act,* provide the following direction on how to analyze a project's energy consumption:

> "If analysis of the project's energy use reveals that the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources, the EIR shall mitigate that energy use. This analysis should include the project's energy use for all project phases and components, including transportation-related energy, during construction and operation. In addition to building code compliance, other relevant considerations may include, among others, the project's size, location, orientation, equipment use and any renewable energy features that could be incorporated into the project. (Guidance on information that may be included in such an analysis is presented in Appendix F.) This analysis is subject to the rule of reason and shall focus on energy use that is caused by the project. This analysis may be included in related analyses of air quality, greenhouse gas emissions, transportation or utilities in the discretion of the lead agency."

If the proposed project creates inefficient, wasteful or unnecessary consumption of energy during construction or operation activities or conflicts with a state or local plan for renewable energy or energy efficiency, then the proposed project would create a significant energy impact.

9.6 Greenhouse Gas Emissions

The Anaheim Public Utilities has adopted the *Greenhouse Gas Reduction Plan* (GHG Reduction Plan), July 2015. The GHG Reduction Plan has been prepared to assist the City's power supplies in conforming to the GHG emissions reductions as mandated under AB 32. The GHG Reduction Plan provides a utilities GHG emission reduction targets of 20 percent below 1990 levels by the year 2020 and a 40 percent below 1990 levels by 2030. Since the GHG Reduction Plan does not provide any quantitative GHG emissions thresholds for new development projects nor does it provide any direction on how to analyze new development projects within the City, the SCAQMD GHG emissions reduction thresholds have been utilized in this analysis.

In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, the SCAQMD Board has not yet considered or approved the Working Group's thresholds.

It should be noted that SCAQMD's Working Group's thresholds were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, the California Supreme Court's ruling on *Cleveland National Forest Foundation v. San Diego Association of Governments* (Cleveland v. SANDAG), Filed July 13, 2017 stated:

> SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation].

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such this analysis has relied on the SCAQMD Working Group's recommended thresholds. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if the proposed project would exceed the annual threshold of 3,000 $MTCO_2e$.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 10.8 and 10.9.

10.0 IMPACT ANALYSIS

10.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality, energy, and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

10.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 9.1 or local thresholds of significance discussed above in Section 9.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 9.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS (Connect SoCal) and FTIP (2019 FTIP). The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Anaheim General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The project site is currently designated as Office-Low (O-L) in the General Plan Land Use Plan and is zoned General Commercial (C-G). The proposed project consists of the development of 34 townhomes on 1.55 net acres, which would result in a density of 22 dwelling units per acre. As such, the project applicant is requesting a General Plan Amendment and Zoning Amendment to redesignate and rezone the project site to Mid Density Residential, which allows for up to 27 dwelling units per acre and to rezone the project site to the RM-3.5 Zone, that allows a minimum building site area per dwelling unit of 1,600 square feet.

Although the proposed project is currently inconsistent with the General Plan land use designation and zoning for the project site, the proposed townhomes would be a compatible use to the existing multifamily residential uses that are located to the north, northeast, and south sides of the project site, and would provide housing in close proximity to the existing commercial uses to the west and church and school to the east, which will promote a walkable community. The project site is also in close proximity

to the Euclid-Broadway OCTA bus stop that is located 350 feet west of the project site. As such the proposed project would be in substantial compliance with the City's Land Use Element's goals and policies. Therefore, the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Level of Significance

Less than significant impact.

10.3 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

Construction Emissions

The construction activities for the proposed project are anticipated to include demolition of the three existing office buildings and associated driveways and parking lots on the project site, site preparation and grading of the 1.55-acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, and application of architectural coatings. The construction emissions have been analyzed for both regional and local air quality impacts.

Construction-Related Regional Impacts

The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table K and the CalEEMod daily printouts are shown in Appendix A. Since it is possible that building construction, paving and architectural coating activities may occur concurrently towards the end of the building construction phase, Table K also shows the combined regional criteria pollutant emissions from building construction (year 2023), paving, and architectural coating phases of construction.

Table K shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either demolition, site preparation, grading, or the combined building construction, paving and architectural coatings phases. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

Table K – Construction-Related Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Demolition[1]						
Onsite[2]	1.69	16.62	13.96	0.02	1.38	0.86
Offsite[3]	0.08	1.34	0.80	0.01	0.31	0.09
Total	**1.77**	**17.96**	**14.76**	**0.03**	**1.68**	**0.95**
Site Preparation[1]						
Onsite	1.31	14.63	7.09	0.02	3.70	1.74
Offsite	0.04	0.30	0.36	<0.00	0.13	0.04
Total	**1.35**	**14.92**	**7.45**	**0.02**	**3.20**	**1.78**
Grading[1]						
Onsite	1.54	16.98	9.22	0.02	3.51	2.02
Offsite	0.08	1.65	0.79	0.01	0.31	0.09
Total	**1.62**	**18.63**	**10.01**	**0.03**	**3.82**	**2.11**
Building Construction (year 2022)						
Onsite	1.65	12.50	12.73	0.02	0.59	0.57
Offsite	0.13	0.45	1.31	0.01	0.46	0.13
Total	**1.78**	**12.96**	**14.04**	**0.03**	**1.05**	**0.69**
Combined Building Construction (year 2023), Paving, and Architectural Coatings						
Onsite	32.09	19.25	23.22	0.04	0.89	0.85
Offsite	0.18	0.40	1.83	0.01	0.68	0.18
Total	**32.27**	**19.65**	**25.05**	**0.04**	**1.57**	**1.03**
Maximum Daily Construction Emissions	**32.27**	**19.65**	**25.05**	**0.04**	**3.82**	**2.11**
SCQAMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Demolition, Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] Onsite emissions from equipment not operated on public roads.
[3] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2020.4.0.

Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are NOx, CO, PM10, and PM2.5. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality.

Table L shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that have been detailed above in Section 8.2. Since it is possible that building construction, paving and architectural coating activities may occur concurrently towards the end of the building construction phase, Table L also shows the combined local criteria pollutant emissions from year 2023 building construction and architectural coating phases of construction.

Table L – Construction-Related Local Criteria Pollutant Emissions

Construction Phase	Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Demolition[2]	16.79	14.06	1.42	0.88
Site Preparation[2]	14.66	7.14	3.08	1.75
Grading[2]	17.19	9.32	3.55	2.03
Building Construction (Year 2022)	12.56	12.89	0.65	0.58
Combined Building Construction, Paving and Architectural Coatings (Year 2023)	20.10	23.58	1.05	0.95
Maximum Daily Construction Emissions	**20.10**	**23.58**	**3.55**	**2.03**
SCAQMD Local Construction Thresholds[3]	**100**	**612**	**5**	**4**
Exceeds Threshold?	No	No	No	No

Notes:
[1] The Pollutant Emissions include 100% of the On-Site emissions (off-road equipment and fugitive dust) and 1/8 of the Off-Site emissions (on road trucks and worker vehicles), in order to account for the on-road emissions that occur within a ¼ mile of the project site.
[2] Demolition, Site Preparation and Grading phases based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[3] The nearest offsite sensitive receptors to the project site are multi-family homes located as near as 50 feet (15 meters) north of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25-meter threshold.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one and two acres in Air Monitoring Area 17, Central Orange County.

The data provided in Table L shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either demolition, site preparation, grading, building construction, or the combined building construction, paving and application of architectural coatings phases. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Operational Emissions

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips, emissions from energy usage, onsite area source emissions created from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the proposed project.

Operations-Related Regional Criteria Pollutant Analysis

The operations-related regional criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table M and the CalEEMod daily emissions printouts are shown in Appendix A.

Table M – Operational Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	1.49	0.03	2.80	<0.00	0.02	0.02
Energy Usage[2]	0.02	0.14	0.06	<0.00	0.01	0.01
Mobile Sources[3]	0.66	0.66	6.09	0.01	1.53	0.41
Total Emissions	**2.17**	**0.84**	**8.95**	**0.01**	**1.55**	**0.44**
SCQAMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, hearths, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage (non-hearth).
[3] Mobile sources consist of emissions from vehicles and road dust.
Source: Calculated from CalEEMod Version 2020.4.0.

The data provided in Table M shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant above in Section 4.1 and specifically in Table B. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf) (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed

Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in Table K, project-related construction activities would generate a maximum of 32.27 pounds per day of VOC and 19.65 pounds per day of NOx and as shown above in Table M, operation of the proposed project would generate 2.17 pounds per day of VOC and 0.84 pounds per day NOx. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the proposed project's localized impact to air quality for emissions of CO, NOx, PM10, and PM2.5 by comparing the proposed project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NOx, PM10, and PM2.5.

Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analyzes the vehicular CO emissions and local impacts from on-site operations.

Local CO Hotspot Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. According to the SCAQMD Air Quality Data Tables, in 2007 Central Orange County had maximum CO concentrations of 4.0 ppm for 1 hour and 2.9 ppm for 8-hours and in 2020 Central Orange County had maximum CO concentrations of 2.3 ppm for 1-hour and 1.7 ppm for 8-hours, which represent decreases in CO concentrations of 43 percent and 41 percent, respectively between 2020 and 2007. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles[3] during the peak morning and afternoon periods and did not predict a violation of CO standards. Since the nearby intersections to the proposed project are much smaller with less traffic than what was analyzed by the SCAQMD and since the CO concentrations are now at least 41 percent lower than when CO was designated in attainment in 2007, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Criteria Pollutant Impacts from Onsite Operations

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table N shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

Table N – Operations-Related Local Criteria Pollutant Emissions

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	0.03	2.80	0.02	0.02
Energy Usage	0.14	0.06	0.01	0.01
Mobile Sources	0.02	0.15	0.04	0.01
Total Emissions	**0.19**	**3.02**	**0.06**	**0.04**
SCAQMD Local Operational Thresholds[1]	**100**	**612**	**2**	**1**
Exceeds Threshold?	No	No	No	No

Notes:
[1] The nearest offsite sensitive receptors to the project site are multi-family homes located as near as 50 feet (15 meters) north of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25-meter threshold.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one and two acres in Air Monitoring Area 17, Central Orange County.

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

The data provided in Table N shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

10.4 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 10.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptors to the project site are residents at the multifamily homes located as near as 50 feet north of the project site. The nearest school is Loara Elementary School, which is located as near as 135 feet east of the project site.

Construction-Related Sensitive Receptor Impacts

The construction activities for the proposed project are anticipated to include demolition of the three existing office buildings and associated driveways and parking lots on the project site, site preparation and grading of the 1.55-acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, and application of architectural coatings. Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed project have been analyzed above in Section 10.3 and found that the construction of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

Toxic Air Contaminants Impacts from Construction

Construction activities associated with the proposed project are anticipated to generate TAC emissions from DPM associated with the operation of trucks and off-road equipment and from possible asbestos in the structures to be demolished.

Diesel Particulate Matter Emissions

The greatest potential for toxic air contaminant emissions would be related to DPM emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual

cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. As of January, 2019, 25 percent or more of all contractors' equipment fleets must be Tier 2 or higher. Therefore, no significant short-term toxic air contaminant impacts from DPM emissions would occur during construction of the proposed project.

Asbestos Emissions

It is possible that the existing onsite structures to be demolished contains asbestos. According to SCAQMD Rule 1403 requirements, prior to the start of demolition activities, the existing structures located onsite shall be thoroughly surveyed for the presence of asbestos by a person that is certified by Cal/OSHA for asbestos surveys. Rule 1403 requires that the SCAQMD be notified a minimum of 10 days before any demolition activities begin with specific details of all asbestos to be removed, start and completion dates of demolition, work practices and engineering controls to be used to contain the asbestos emissions, estimates on the amount of asbestos to be removed, the name of the waste disposal site where the asbestos will be taken, and names and addresses of all contractors and transporters that will be involved in the asbestos removal process. Therefore, through adherence to the asbestos removal requirements, detailed in SCAQMD Rule 1403, a less than significant asbestos impact would occur during construction of the proposed project

As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided above in Section 10.3 shows that no local CO Hotspots are anticipated to be created at any

nearby intersections from the vehicle traffic generated by the proposed project. Therefore, operation of the proposed project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 10.3 found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related Toxic Air Contaminant Impacts

Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program. Due to the nominal number of diesel truck trips that are anticipated to be generated by the on-going operation of the proposed townhomes, a less than significant TAC impact would be created from the on-going operations of the proposed project and no mitigation would be required.

Level of Significance

Less than significant impact.

10.5 Odor Emissions

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic

tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of a multifamily residential development. Potential sources that may emit odors during the on-going operations of the proposed project would primarily occur from the trash storage areas. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 and City trash storage regulations, no significant impact related to odors would occur during the on-going operations of the proposed project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

10.6 Energy Consumption

The proposed project would impact energy resources during construction and operation. Energy resources that would be potentially impacted include electricity, natural gas, and petroleum based fuel supplies and distribution systems. This analysis includes a discussion of the potential energy impacts of the proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. A general definition of each of these energy resources are provided below.

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. In 2019, the City of Anaheim Public Utilities provided 2,085.89 Gigawatt-hours per year of electricity to the City[4].

4 Obtained from: http://www.ecdms.energy.ca.gov/elecbyutil.aspx

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs, mainly located outside the State, and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network and, therefore, resource availability is typically not an issue. Natural gas satisfies almost one-third of the State's total energy requirements and is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet. In 2020, Orange County consumed 594.63 Million Therms of natural gas[5].

Petroleum-based fuels currently account for a majority of the California's transportation energy sources and primarily consist of diesel and gasoline types of fuels. However, the state has been working on developing strategies to reduce petroleum use. Over the last decade California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHG emissions from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, petroleum-based fuel consumption in California has declined. In 2017, 1,382 million gallons of gasoline and 61 million gallons of diesel was sold in Orange County[6].

The following section calculates the potential energy consumption associated with the construction and operations of the proposed project and provides a determination if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumption of energy resources.

Construction Energy

The construction activities for the proposed project are anticipated to include demolition of the three existing office buildings and associated driveways and parking lots on the project site, site preparation and grading of the 1.55-acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, and application of architectural coatings. The proposed project would consume energy resources during construction in three (3) general forms:

1. Petroleum-based fuels used to power off-road construction vehicles and equipment on the Project Site, construction worker travel to and from the Project Site, as well as delivery and haul truck trips (e.g. hauling of demolition material to off-site reuse and disposal facilities);
2. Electricity associated with the conveyance of water that would be used during Project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power; and,
3. Energy used in the production of construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction-Related Electricity

During construction the proposed project would consume electricity to construct the new structures and infrastructure. Electricity would be supplied to the project site by Anaheim Public Utilities and would be obtained from the existing electrical lines in the vicinity of the project site. The use of electricity from existing power lines rather than temporary diesel or gasoline powered generators would minimize impacts on energy use. Electricity consumed during project construction would vary throughout the

5 Obtained from: http://www.ecdms.energy.ca.gov/gasbycounty.aspx
6 Obtained from: https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/

construction period based on the construction activities being performed. Various construction activities include electricity associated with the conveyance of water that would be used during project construction for dust control (supply and conveyance) and electricity to power any necessary lighting during construction, electronic equipment, or other construction activities necessitating electrical power. Such electricity demand would be temporary, nominal, and would cease upon the completion of construction. Overall, construction activities associated with the proposed project would require limited electricity consumption that would not be expected to have an adverse impact on available electricity supplies and infrastructure. Therefore, the use of electricity during project construction would not be wasteful, inefficient, or unnecessary.

Since the project site already has electrical service, it is anticipated that only nominal improvements would be required to Anaheim Public Utilities distribution lines and equipment with development of the proposed project. Where feasible, the new service installations and connections would be scheduled and implemented in a manner that would not result in electrical service interruptions to other properties. Compliance with City's guidelines and requirements would ensure that the proposed project fulfills its responsibilities relative to infrastructure installation, coordinates any electrical infrastructure removals or relocations, and limits any impacts associated with demolition, grading, construction, and development. Construction of the project's electrical infrastructure is not anticipated to adversely affect the electrical infrastructure serving the surrounding uses or utility system capacity.

Construction-Related Natural Gas

Construction of the proposed project typically would not involve the consumption of natural gas. Natural gas would not be supplied to support construction activities, thus there would be no demand generated by construction. Since the project site is adjacent to roads that currently have natural gas lines, construction of the proposed project would be limited to installation of new natural gas connections within the project site. Development of the proposed project would likely not require extensive infrastructure improvements to serve the project site. Construction-related energy usage impacts associated with the installation of natural gas connections are expected to be confined to trenching in order to place the lines below surface. In addition, prior to ground disturbance, the proposed project would notify and coordinate with SoCalGas to identify the locations and depth of all existing gas lines and avoid disruption of gas service. Therefore, construction-related impacts to natural gas supply and infrastructure would be less than significant.

Construction-Related Petroleum Fuel Use

Petroleum-based fuel usage represents the highest amount of transportation energy potentially consumed during construction, which would be utilized by both off-road equipment operating on the project site and on-road automobiles transporting workers to and from the project site and on-road trucks transporting equipment and supplies to the project site.

The off-road construction equipment fuel usage was calculated through use of the off-road equipment assumptions and fuel use assumptions shown above in Section 8.2, which found that the off-road equipment utilized during construction of the proposed project would consume 32,033 gallons of fuel. The on-road construction trips fuel usage was calculated through use of the construction vehicle trip assumptions and fuel use assumptions shown above in Section 8.2, which found that the on-road trips generated from construction of the proposed project would consume 7,875 gallons of fuel. As such, the combined fuel used from off-road construction equipment and on-road construction trips for the proposed project would result in the consumption of 39,908 gallons of petroleum fuel. This equates to

0.003 percent of the gasoline and diesel consumed annually in Orange County. As such, the construction-related petroleum use would be nominal, when compared to current county-wide petroleum usage rates.

Construction activities associated with the proposed project would be required to adhere to all State and SCAQMD regulations for off-road equipment and on-road trucks, which provide minimum fuel efficiency standards. As such, construction activities for the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Impacts regarding transportation energy would be less than significant. Development of the project would not result in the need to manufacture construction materials or create new building material facilities specifically to supply the proposed project. It is difficult to measure the energy used in the production of construction materials such as asphalt, steel, and concrete, it is reasonable to assume that the production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest of minimizing the cost of doing business.

Operational Energy

The on-going operation of the proposed project would require the use of energy resources for multiple purposes including, but not limited to, heating/ventilating/air conditioning (HVAC), refrigeration, lighting, appliances, and electronics. Energy would also be consumed during operations related to water usage, solid waste disposal, landscape equipment and vehicle trips.

Operations-Related Electricity

Operation of the proposed project would result in consumption of electricity at the project site. As detailed above in Section 8.2 the proposed project would consume 58,953 kilowatt-hours per year of electricity. This equates to 0.0028 percent of the electricity consumed annually by Anaheim Public Utilities. As such, the operations-related electricity use would be nominal, when compared to current electricity usage rates in the City.

It should be noted that the proposed project will be required to meet the 2019 Title 24, Part 6 building energy efficiency standards that have been developed to meet the State's goal of zero-net-energy use for new homes. The zero net energy use will be achieved through a variety of measures to make new homes more energy efficient and by also requiring installation of photovoltaic systems of adequate size to generate enough electricity to meet the zero-net energy use standard. The size of the PV system required for the project pursuant to the 2019 Title 24 standards was calculated above in Section 8.1, which found that the proposed project would need to install at least 43.3 Kilowatts of photovoltaic panels within the proposed project. Although, the CalEEMod model found that with implementation of the 2019 Title 24 Part 6 standards, that the proposed project would continue to utilize a nominal amount of power, it should be noted that the electricity usage and emission rates utilized by the CalEEMod model are based on regional average usage rates for existing homes, which were not all built to the most current Title 24 Part 6, standards, so the CalEEMod model provides a conservative or worst-case analysis of electricity use from the proposed project. Therefore, it is anticipated the proposed project will be designed and built to minimize electricity use and that existing and planned electricity capacity and electricity supplies would be sufficient to support the proposed project's electricity demand. Thus, impacts with regard to electrical supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

Operations-Related Natural Gas

Operation of the proposed project would result in increased consumption of natural gas at the project site. As detailed above in Section 8.2 the proposed project would consume 561 MBTU per year of natural gas. This equates to 0.0009 percent of the natural gas consumed annually in Orange County. As such, the operations-related natural gas use would be nominal, when compared to current natural gas usage rates in the County.

It should be noted that, the proposed project would comply with all Federal, State, and County requirements related to the consumption of natural gas, that includes CCR Title 24, Part 6 *Building Energy Efficiency Standards* and CCR Title 24, Part 11: *California Green Building Standards.* The CCR Title 24, Part 6 and Part 11 standards require numerous energy efficiency measures to be incorporated into the proposed structures, including enhanced insulation as well as use of efficient natural gas appliances and HVAC units. Therefore, it is anticipated the proposed project will be designed and built to minimize natural gas use and that existing and planned natural gas capacity and natural gas supplies would be sufficient to support the proposed project's natural gas demand. Thus, impacts with regard to natural gas supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

Operations-Related Vehicular Petroleum Fuel Usage

Operation of the proposed project would result in increased consumption of petroleum-based fuels related to vehicular travel to and from the project site. As detailed above in Section 8.2 the proposed project would consume 19,159 gallons of petroleum fuel per year from vehicle travel. This equates to 0.0013 percent of the gasoline and diesel consumed in Orange County annually. As such, the operations-related petroleum use would be nominal, when compared to current petroleum usage rates

It should be noted that, the proposed project would comply with all Federal, State, and City requirements related to the consumption of transportation energy that includes California Code of Regulations Title 24, Part 10 California Green Building Standards that require the proposed project to include electric vehicle charging spaces on the project site as well as providing preferred Clean Air vehicle parking spaces. The proposed project would also be located next to the existing Euclid-Broadway OCTA bus stop, which will encourage the use of public transportation. Therefore, it is anticipated the proposed project will be designed and built to minimize transportation energy through the promotion of the use of electric-powered vehicles and it is anticipated that existing and planned capacity and supplies of transportation fuels would be sufficient to support the proposed project's demand. Thus, impacts with regard transportation energy supply and infrastructure capacity would be less than significant and no mitigation measures would be required.

In conclusion, the proposed project would comply with regulatory compliance measures outlined by the State and City related to Air Quality, Greenhouse Gas Emissions (GHG), Transportation/Circulation, and Water Supply. Additionally, the proposed project would be constructed in accordance with all applicable City Building and Fire Codes. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.7 Energy Plan Consistency

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The applicable energy plan for the proposed project is the *City of Anaheim General Plan Green Element,* adopted May 2004. The proposed project's consistency with the energy conservation policies from the General Plan are shown in Table O.

Table O – Proposed Project Compliance with the General Plan Energy Conservation Policies

General Plan Policy	Proposed Project Implementation Actions
Continue to maintain and update energy conservation programs and information provided on the City's website.	**Not Applicable.** The policy is only applicable to City Staff for maintain the City's website.
Encourage increased use of passive and active solar design in existing and new development (e.g., orienting buildings to maximize exposure to cooling, effects of prevailing winds and locating landscaping and landscape structures to shade buildings).	**Consistent.** The proposed project will be required to Provided a minimum of 43.3 kilowatts of photovoltaic solar panels in order to meet the Title 24 Part 6 rooftop solar PV requirements. In addition, the project has been designed to orient buildings to maximize exposure to cooling and the landscape plan has been designed to locate landscaping to shade structures.
Encourage energy-efficient retrofitting of existing buildings throughout the City.	**Not Applicable.** The proposed project consists of the demolition of the existing structures on the project site and construction of new buildings. No existing structures would remain onsite that could be retrofitted.
Continue to provide free energy audits for the public.	**Not Applicable.** The policy is only applicable for the City as a service that the City provides.

Source: City of Anaheim, 2004.

As shown in Table O, the proposed project would be consistent with all applicable energy conservation policies from the General Plan. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.8 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The proposed project would consist of a residential development with 34 townhomes. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment.

The City of Anaheim has adopted the *Greenhouse Gas Reduction Plan,* July 2015, that details measures for the City that includes new development within the City to implement in order to meet the State's 2030 GHG emission reduction target of 40 percent below 1990 baseline levels. In order to show consistency with the GHG Reduction Plan, quantification of the proposed project's GHG emissions are not required. As such, the proposed project's GHG emissions have been provided for informational purposes only. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and

operational parameters detailed above in Section 8.1. A summary of the results is shown below in Table P and the CalEEMod model run is provided in Appendix D.

Table P – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	0.57	<0.00	<0.00	0.59
Energy Usage[2]	71.22	<0.00	<0.00	71.46
Mobile Sources[3]	169.46	0.01	0.01	171.93
Solid Waste[4]	1.59	0.09	<0.00	3.93
Water and Wastewater[5]	26.91	0.06	<0.00	28.81
Construction[6]	12.50	0.17	<0.00	12.61
Total GHG Emissions	282.25	0.17	0.01	**289.32**
SCAQMD Draft Threshold of Significance				**3,000**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[5] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[6] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2020.4.0.

The data provided in Table P shows that the proposed project would create 289.32 $MTCO_2e$ per year. For reference purposes Table P also shows, the SCAQMD's draft threshold of 3,000 $MTCO_2e$, which the proposed project would be within this threshold. In addition, as detailed below in Section 10.9, the proposed project would be consistent with the applicable measures in the GHG Reduction Plan. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

Level of Significance

Less than significant impact.

10.9 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The Anaheim Public Utilities adopted the *Greenhouse Gas Reduction Plan* (GHG Reduction Plan), July 2015. The GHG Reduction Plan was prepared to assist the City's power supplies in conforming to the GHG emissions reductions as mandated under AB 32. The GHG Reduction Plan provides a utilities GHG emission reduction targets of 20 percent below 1990 levels by the year 2020 and a 40 percent below 1990 levels by 2030. The Plan provides reduction targets for energy usage, photovoltaic (PV) rooftop installations, and use of electric vehicles.

For energy usage, the GHG Reduction Plan provides a target of a 15 percent reduction by 2020 and a 30 percent reduction by 2030 of the energy utilized by homes in Anaheim. This target will be met through application of State regulations including CCR Title 24, Part 6. The 2019 Title 24 Building Standards that went into effect on January 1, 2020, and are required to be met for the proposed project's structures. Homes built with the 2019 Standards will use about 7 percent less energy than the current 2016 Standards. It should also be noted that the 2016 Title 24 Standards included new energy-efficiency

requirements that resulted in new homes being 15 percent more efficient than the 2013 Title 24 Part 6 Standards that were in effect at the time of the preparation of the GHG Reduction Plan. Therefore, through implementation of the State regulations the proposed project will meet the energy use reduction targets provided in the GHG Reduction Plan.

For PV rooftop installations, the GHG Reduction Plan provides a target of 27,000 kW of PV systems installed by 2020 and 37,000 kW of PV systems installed by 2030. This target will be met through application of State regulations including Title 24, Part 6 that requires the proposed project to install a minimum of 43.3 kilowatts of photovoltaic solar panels onto the proposed townhomes. Therefore, through implementation of the State regulations the proposed project will assist the City in meeting the PV rooftop installation targets provided in the GHG Reduction Plan.

For electric vehicles, the GHG Reduction Plan provides a target of 2,000 low or zero emission vehicles by 2020 and 5,000 low or zero emission vehicles by 2030. As detailed on the site plan for the proposed project, the proposed project will provide at least one electric vehicle charging station. Therefore, development of the proposed project will assist the City in meeting the electric vehicle usage targets provided in the GHG Reduction Plan.

As detailed above, development of the proposed project would meet the targets outlined in the GHG Reduction Plan. Therefore, the proposed project would comply with the GHG Reduction Plan reduction targets and would not conflict with the applicable plan for reducing GHG emissions. Impacts would be less than significant.

Level of Significance

Less than significant impact.

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APPENDIX A

CalEEMod Model Daily Printouts

West Broadway Townhomes - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

West Broadway Townhomes

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.65	Acre	0.65	28,314.00	0
Condo/Townhouse	34.00	Dwelling Unit	0.90	65,000.00	97

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	Anaheim Public Utilities				
CO2 Intensity (lb/MWhr)	1543.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site 1.55 acres

Construction Phase - Construction schedule extended by 40 percent to match project applicant's construction schedule

Trips and VMT - 6 vendor trips per day added to Demolition, Site Prep and Grading to account for water truck emissions.

Demolition - Demo - 14,144 sq ft of building = 651 tons + 48,000 sq ft of pavement = 1,160 tons. Total 1,811 tons of debris

Grading - Grading 400 cu yds import

Vehicle Trips - Weekday Trip Rate set to 5.44 trips per home from Traffic Analysis

Woodstoves - No woodstoves or fireplaces would be constructed on project site.

Construction Off-road Equipment Mitigation - Water Exposed Area 3 times per day selected to account for SCAQMD Rule 403 minimum requirements.

Mobile Land Use Mitigation - Increase Transit Accessibility 0.07 mile to bus stop. Improve Ped Network on Project Site and Connecting Offsite

Water Mitigation - Install low flow fixtures and water-efficient irrigation selected to account for Title 24 Part 11 requirements

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Waste Mitigation - 50% reduction in waste selected to account for AB 341.

Energy Mitigation - 105,346 kWh generated from solar PV panels

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	200.00	278.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	4.00	6.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	2.00	3.00
tblFireplaces	NumberGas	28.90	0.00
tblFireplaces	NumberNoFireplace	3.40	34.00
tblFireplaces	NumberWood	1.70	0.00
tblGrading	MaterialImported	0.00	400.00
tblLandUse	LandUseSquareFeet	34,000.00	65,000.00
tblLandUse	LotAcreage	2.13	0.90
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	WD_TR	7.32	5.44
tblWoodstoves	NumberCatalytic	1.70	0.00
tblWoodstoves	NumberNoncatalytic	1.70	0.00

2.0 Emissions Summary

West Broadway Townhomes - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7703	18.5705	14.7635	0.0303	7.3856	0.8488	8.1409	3.5064	0.7933	4.2017	0.0000	3,008.8905	3,008.8905	0.7085	0.1103	3,051.7760
2023	29.8254	12.0556	13.8296	0.0269	0.4536	0.5180	0.9715	0.1214	0.5001	0.6215	0.0000	2,507.2590	2,507.2590	0.4141	0.0301	2,525.1442
Maximum	**29.8254**	**18.5705**	**14.7635**	**0.0303**	**7.3856**	**0.8488**	**8.1409**	**3.5064**	**0.7933**	**4.2017**	**0.0000**	**3,008.8905**	**3,008.8905**	**0.7085**	**0.1103**	**3,051.7760**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7703	18.5705	14.7635	0.0303	3.0606	0.8488	3.8159	1.4166	0.7933	2.1119	0.0000	3,008.8905	3,008.8905	0.7085	0.1103	3,051.7760
2023	29.8254	12.0556	13.8296	0.0269	0.4536	0.5180	0.9715	0.1214	0.5001	0.6215	0.0000	2,507.2590	2,507.2590	0.4141	0.0301	2,525.1442
Maximum	**29.8254**	**18.5705**	**14.7635**	**0.0303**	**3.0606**	**0.8488**	**3.8159**	**1.4166**	**0.7933**	**2.1119**	**0.0000**	**3,008.8905**	**3,008.8905**	**0.7085**	**0.1103**	**3,051.7760**

West Broadway Townhomes - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	55.17	0.00	47.46	57.60	0.00	43.33	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721
Energy	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Mobile	0.7504	0.7624	7.6191	0.0182	1.9928	0.0122	2.0049	0.5312	0.0113	0.5425		1,887.0077	1,887.0077	0.1068	0.0721	1,911.1730
Total	**2.2619**	**0.9364**	**10.4833**	**0.0193**	**1.9928**	**0.0392**	**2.0319**	**0.5312**	**0.0383**	**0.5695**	**0.0000**	**2,072.9401**	**2,072.9401**	**0.1151**	**0.0755**	**2,098.3015**

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	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721
Energy	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Mobile	0.6586	0.6165	6.0947	0.0140	1.5185	9.5200e-003	1.5280	0.4048	8.8500e-003	0.4136		1,446.8186	1,446.8186	0.0881	0.0585	1,466.4490
Total	**2.1701**	**0.7905**	**8.9589**	**0.0150**	**1.5185**	**0.0365**	**1.5550**	**0.4048**	**0.0359**	**0.4406**	**0.0000**	**1,632.7510**	**1,632.7510**	**0.0964**	**0.0618**	**1,653.5775**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	4.06	15.59	14.54	22.06	23.80	6.77	23.47	23.80	6.45	22.63	0.00	21.24	21.24	16.21	18.10	21.19

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/16/2022	6/22/2022	5	28	
2	Site Preparation	Site Preparation	6/23/2022	6/27/2022	5	3	
3	Grading	Grading	6/28/2022	7/5/2022	5	6	
4	Building Construction	Building Construction	7/6/2022	7/28/2023	5	278	
5	Paving	Paving	7/29/2023	8/17/2023	5	14	
6	Architectural Coating	Architectural Coating	8/18/2023	9/6/2023	5	14	

Acres of Grading (Site Preparation Phase): 2.81

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.65

Residential Indoor: 131,625; Residential Outdoor: 43,875; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,699 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Demolition	5	13.00	6.00	179.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	50.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	36.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3841	0.0000	1.3841	0.2096	0.0000	0.2096			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**1.3841**	**0.8379**	**2.2220**	**0.2096**	**0.7829**	**0.9924**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

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	0.0259	0.9953	0.2796	3.8100e-003	0.1115	7.5300e-003	0.1190	0.0305	7.2000e-003	0.0377		432.2188	432.2188	0.0412	0.0692	453.8780
Vendor	9.9800e-003	0.2692	0.0956	1.1400e-003	0.0384	2.6200e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4146	124.4146	7.1300e-003	0.0178	129.9060
Worker	0.0391	0.0263	0.4278	1.2700e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		128.8404	128.8404	3.0100e-003	2.8800e-003	129.7729
Total	**0.0750**	**1.2908**	**0.8030**	**6.2200e-003**	**0.2952**	**0.0109**	**0.3061**	**0.0801**	**0.0104**	**0.0906**		**685.4737**	**685.4737**	**0.0513**	**0.0899**	**713.5569**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5398	0.0000	0.5398	0.0817	0.0000	0.0817			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.5398**	**0.8379**	**1.3777**	**0.0817**	**0.7829**	**0.8646**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

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	0.0259	0.9953	0.2796	3.8100e-003	0.1115	7.5300e-003	0.1190	0.0305	7.2000e-003	0.0377		432.2188	432.2188	0.0412	0.0692	453.8780
Vendor	9.9800e-003	0.2692	0.0956	1.1400e-003	0.0384	2.6200e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4146	124.4146	7.1300e-003	0.0178	129.9060
Worker	0.0391	0.0263	0.4278	1.2700e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		128.8404	128.8404	3.0100e-003	2.8800e-003	129.7729
Total	**0.0750**	**1.2908**	**0.8030**	**6.2200e-003**	**0.2952**	**0.0109**	**0.3061**	**0.0801**	**0.0104**	**0.0906**		**685.4737**	**685.4737**	**0.0513**	**0.0899**	**713.5569**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2627	0.0000	6.2627	3.0037	0.0000	3.0037			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727		1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**6.2627**	**0.6225**	**6.8852**	**3.0037**	**0.5727**	**3.5764**		**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9800e-003	0.2692	0.0956	1.1400e-003	0.0384	2.6200e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4146	124.4146	7.1300e-003	0.0178	129.9060
Worker	0.0241	0.0162	0.2633	7.8000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		79.2864	79.2864	1.8500e-003	1.7700e-003	79.8603
Total	**0.0341**	**0.2854**	**0.3589**	**1.9200e-003**	**0.1278**	**3.1000e-003**	**0.1309**	**0.0348**	**2.9500e-003**	**0.0377**		**203.7009**	**203.7009**	**8.9800e-003**	**0.0196**	**209.7663**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4424	0.0000	2.4424	1.1715	0.0000	1.1715			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727	0.0000	1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**2.4424**	**0.6225**	**3.0650**	**1.1715**	**0.5727**	**1.7442**	**0.0000**	**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9800e-003	0.2692	0.0956	1.1400e-003	0.0384	2.6200e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4146	124.4146	7.1300e-003	0.0178	129.9060
Worker	0.0241	0.0162	0.2633	7.8000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		79.2864	79.2864	1.8500e-003	1.7700e-003	79.8603
Total	**0.0341**	**0.2854**	**0.3589**	**1.9200e-003**	**0.1278**	**3.1000e-003**	**0.1309**	**0.0348**	**2.9500e-003**	**0.0377**		**203.7009**	**203.7009**	**8.9800e-003**	**0.0196**	**209.7663**

West Broadway Townhomes - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0901	0.0000	7.0901	3.4259	0.0000	3.4259			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0901**	**0.7423**	**7.8324**	**3.4259**	**0.6829**	**4.1088**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0338	1.2974	0.3644	4.9700e-003	0.1453	9.8200e-003	0.1552	0.0398	9.3900e-003	0.0492		563.4137	563.4137	0.0537	0.0902	591.6473
Vendor	9.9800e-003	0.2692	0.0956	1.1400e-003	0.0384	2.6200e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4146	124.4146	7.1300e-003	0.0178	129.9060
Worker	0.0301	0.0202	0.3291	9.7000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.6000e-004	0.0302		99.1080	99.1080	2.3200e-003	2.2100e-003	99.8253
Total	**0.0738**	**1.5869**	**0.7891**	**7.0800e-003**	**0.2955**	**0.0130**	**0.3085**	**0.0805**	**0.0125**	**0.0929**		**786.9362**	**786.9362**	**0.0632**	**0.1103**	**821.3786**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7652	0.0000	2.7652	1.3361	0.0000	1.3361			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**2.7652**	**0.7423**	**3.5074**	**1.3361**	**0.6829**	**2.0190**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0338	1.2974	0.3644	4.9700e-003	0.1453	9.8200e-003	0.1552	0.0398	9.3900e-003	0.0492		563.4137	563.4137	0.0537	0.0902	591.6473
Vendor	9.9800e-003	0.2692	0.0956	1.1400e-003	0.0384	2.6200e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4146	124.4146	7.1300e-003	0.0178	129.9060
Worker	0.0301	0.0202	0.3291	9.7000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.6000e-004	0.0302		99.1080	99.1080	2.3200e-003	2.2100e-003	99.8253
Total	**0.0738**	**1.5869**	**0.7891**	**7.0800e-003**	**0.2955**	**0.0130**	**0.3085**	**0.0805**	**0.0125**	**0.0929**		**786.9362**	**786.9362**	**0.0632**	**0.1103**	**821.3786**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0133	0.3590	0.1275	1.5100e-003	0.0512	3.4900e-003	0.0547	0.0147	3.3400e-003	0.0181		165.8861	165.8861	9.5100e-003	0.0238	173.2080
Worker	0.1083	0.0728	1.1847	3.5100e-003	0.4024	2.1700e-003	0.4046	0.1067	2.0000e-003	0.1087		356.7887	356.7887	8.3400e-003	7.9700e-003	359.3712
Total	**0.1216**	**0.4317**	**1.3122**	**5.0200e-003**	**0.4536**	**5.6600e-003**	**0.4592**	**0.1214**	**5.3400e-003**	**0.1268**		**522.6748**	**522.6748**	**0.0179**	**0.0317**	**532.5792**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0133	0.3590	0.1275	1.5100e-003	0.0512	3.4900e-003	0.0547	0.0147	3.3400e-003	0.0181		165.8861	165.8861	9.5100e-003	0.0238	173.2080
Worker	0.1083	0.0728	1.1847	3.5100e-003	0.4024	2.1700e-003	0.4046	0.1067	2.0000e-003	0.1087		356.7887	356.7887	8.3400e-003	7.9700e-003	359.3712
Total	**0.1216**	**0.4317**	**1.3122**	**5.0200e-003**	**0.4536**	**5.6600e-003**	**0.4592**	**0.1214**	**5.3400e-003**	**0.1268**		**522.6748**	**522.6748**	**0.0179**	**0.0317**	**532.5792**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0800e-003	0.2804	0.1162	1.4400e-003	0.0512	1.4400e-003	0.0526	0.0147	1.3800e-003	0.0161		157.9595	157.9595	9.3900e-003	0.0227	164.9485
Worker	0.1014	0.0649	1.1023	3.4000e-003	0.4024	2.0600e-003	0.4045	0.1067	1.8900e-003	0.1086		347.5118	347.5118	7.5400e-003	7.4100e-003	349.9099
Total	**0.1095**	**0.3453**	**1.2186**	**4.8400e-003**	**0.4536**	**3.5000e-003**	**0.4570**	**0.1214**	**3.2700e-003**	**0.1247**		**505.4713**	**505.4713**	**0.0169**	**0.0301**	**514.8584**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0800e-003	0.2804	0.1162	1.4400e-003	0.0512	1.4400e-003	0.0526	0.0147	1.3800e-003	0.0161		157.9595	157.9595	9.3900e-003	0.0227	164.9485
Worker	0.1014	0.0649	1.1023	3.4000e-003	0.4024	2.0600e-003	0.4045	0.1067	1.8900e-003	0.1086		347.5118	347.5118	7.5400e-003	7.4100e-003	349.9099
Total	**0.1095**	**0.3453**	**1.2186**	**4.8400e-003**	**0.4536**	**3.5000e-003**	**0.4570**	**0.1214**	**3.2700e-003**	**0.1247**		**505.4713**	**505.4713**	**0.0169**	**0.0301**	**514.8584**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1216					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7662**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0366	0.0234	0.3981	1.2300e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		125.4904	125.4904	2.7200e-003	2.6800e-003	126.3564
Total	**0.0366**	**0.0234**	**0.3981**	**1.2300e-003**	**0.1453**	**7.4000e-004**	**0.1461**	**0.0385**	**6.8000e-004**	**0.0392**		**125.4904**	**125.4904**	**2.7200e-003**	**2.6800e-003**	**126.3564**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1216					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7662**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0366	0.0234	0.3981	1.2300e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		125.4904	125.4904	2.7200e-003	2.6800e-003	126.3564
Total	**0.0366**	**0.0234**	**0.3981**	**1.2300e-003**	**0.1453**	**7.4000e-004**	**0.1461**	**0.0385**	**6.8000e-004**	**0.0392**		**125.4904**	**125.4904**	**2.7200e-003**	**2.6800e-003**	**126.3564**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	29.6140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**29.8057**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0197	0.0126	0.2143	6.6000e-004	0.0782	4.0000e-004	0.0786	0.0208	3.7000e-004	0.0211		67.5717	67.5717	1.4700e-003	1.4400e-003	68.0380
Total	**0.0197**	**0.0126**	**0.2143**	**6.6000e-004**	**0.0782**	**4.0000e-004**	**0.0786**	**0.0208**	**3.7000e-004**	**0.0211**		**67.5717**	**67.5717**	**1.4700e-003**	**1.4400e-003**	**68.0380**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	29.6140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**29.8057**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0197	0.0126	0.2143	6.6000e-004	0.0782	4.0000e-004	0.0786	0.0208	3.7000e-004	0.0211		67.5717	67.5717	1.4700e-003	1.4400e-003	68.0380
Total	**0.0197**	**0.0126**	**0.2143**	**6.6000e-004**	**0.0782**	**4.0000e-004**	**0.0786**	**0.0208**	**3.7000e-004**	**0.0211**		**67.5717**	**67.5717**	**1.4700e-003**	**1.4400e-003**	**68.0380**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6586	0.6165	6.0947	0.0140	1.5185	9.5200e-003	1.5280	0.4048	8.8500e-003	0.4136		1,446.8186	1,446.8186	0.0881	0.0585	1,466.4490
Unmitigated	0.7504	0.7624	7.6191	0.0182	1.9928	0.0122	2.0049	0.5312	0.0113	0.5425		1,887.0077	1,887.0077	0.1068	0.0721	1,911.1730

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	184.96	276.76	213.52	690,792	526,390
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	184.96	276.76	213.52	690,792	526,390

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869
Other Asphalt Surfaces	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

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	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
NaturalGas Unmitigated	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Condo/Townhouse	1537.49	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0166**	**0.1417**	**0.0603**	**9.0000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**		**180.8815**	**180.8815**	**3.4700e-003**	**3.3200e-003**	**181.9564**

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					
Condo/Townhouse	1.53749	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0166**	**0.1417**	**0.0603**	**9.0000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**		**180.8815**	**180.8815**	**3.4700e-003**	**3.3200e-003**	**181.9564**

6.0 Area Detail

West Broadway Townhomes - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721
Unmitigated	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721

West Broadway Townhomes - Orange County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.1136					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0843	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155		5.0509	5.0509	4.8500e-003		5.1721
Total	**1.4949**	**0.0323**	**2.8039**	**1.5000e-004**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**5.0509**	**5.0509**	**4.8500e-003**	**0.0000**	**5.1721**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.1136					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0843	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155		5.0509	5.0509	4.8500e-003		5.1721
Total	**1.4949**	**0.0323**	**2.8039**	**1.5000e-004**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**5.0509**	**5.0509**	**4.8500e-003**	**0.0000**	**5.1721**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

West Broadway Townhomes - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

West Broadway Townhomes

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.65	Acre	0.65	28,314.00	0
Condo/Townhouse	34.00	Dwelling Unit	0.90	65,000.00	97

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	Anaheim Public Utilities				
CO2 Intensity (lb/MWhr)	1543.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site 1.55 acres

Construction Phase - Construction schedule extended by 40 percent to match project applicant's construction schedule

Trips and VMT - 6 vendor trips per day added to Demolition, Site Prep and Grading to account for water truck emissions.

Demolition - Demo - 14,144 sq ft of building = 651 tons + 48,000 sq ft of pavement = 1,160 tons. Total 1,811 tons of debris

Grading - Grading 400 cu yds import

Vehicle Trips - Weekday Trip Rate set to 5.44 trips per home from Traffic Analysis

Woodstoves - No woodstoves or fireplaces would be constructed on project site.

Construction Off-road Equipment Mitigation - Water Exposed Area 3 times per day selected to account for SCAQMD Rule 403 minimum requirements.

Mobile Land Use Mitigation - Increase Transit Accessibility 0.07 mile to bus stop. Improve Ped Network on Project Site and Connecting Offsite

Water Mitigation - Install low flow fixtures and water-efficient irrigation selected to account for Title 24 Part 11 requirements

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Waste Mitigation - 50% reduction in waste selected to account for AB 341.

Energy Mitigation - 105,346 kWh generated from solar PV panels

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	200.00	278.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	4.00	6.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	2.00	3.00
tblFireplaces	NumberGas	28.90	0.00
tblFireplaces	NumberNoFireplace	3.40	34.00
tblFireplaces	NumberWood	1.70	0.00
tblGrading	MaterialImported	0.00	400.00
tblLandUse	LandUseSquareFeet	34,000.00	65,000.00
tblLandUse	LotAcreage	2.13	0.90
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	WD_TR	7.32	5.44
tblWoodstoves	NumberCatalytic	1.70	0.00
tblWoodstoves	NumberNoncatalytic	1.70	0.00

2.0 Emissions Summary

West Broadway Townhomes - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7798	18.6340	14.7413	0.0303	7.3856	0.8489	8.1410	3.5064	0.7933	4.2018	0.0000	3,002.8550	3,002.8550	0.7085	0.1105	3,045.8069
2023	29.8272	12.0745	13.7579	0.0267	0.4536	0.5180	0.9715	0.1214	0.5001	0.6215	0.0000	2,490.8758	2,490.8758	0.4142	0.0306	2,508.9215
Maximum	**29.8272**	**18.6340**	**14.7413**	**0.0303**	**7.3856**	**0.8489**	**8.1410**	**3.5064**	**0.7933**	**4.2018**	**0.0000**	**3,002.8550**	**3,002.8550**	**0.7085**	**0.1105**	**3,045.8069**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.7798	18.6340	14.7413	0.0303	3.0606	0.8489	3.8160	1.4166	0.7933	2.1120	0.0000	3,002.8550	3,002.8550	0.7085	0.1105	3,045.8069
2023	29.8272	12.0745	13.7579	0.0267	0.4536	0.5180	0.9715	0.1214	0.5001	0.6215	0.0000	2,490.8758	2,490.8758	0.4142	0.0306	2,508.9215
Maximum	**29.8272**	**18.6340**	**14.7413**	**0.0303**	**3.0606**	**0.8489**	**3.8160**	**1.4166**	**0.7933**	**2.1120**	**0.0000**	**3,002.8550**	**3,002.8550**	**0.7085**	**0.1105**	**3,045.8069**

West Broadway Townhomes - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	55.17	0.00	47.46	57.60	0.00	43.33	0.00	0.00	0.00	0.00	0.00	0.00

West Broadway Townhomes - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721
Energy	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Mobile	0.7457	0.8188	7.5263	0.0175	1.9928	0.0122	2.0049	0.5312	0.0113	0.5425		1,814.9084	1,814.9084	0.1101	0.0751	1,840.0487
Total	**2.2572**	**0.9928**	**10.3905**	**0.0186**	**1.9928**	**0.0392**	**2.0319**	**0.5312**	**0.0383**	**0.5695**	**0.0000**	**2,000.8409**	**2,000.8409**	**0.1184**	**0.0785**	**2,027.1772**

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	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721
Energy	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Mobile	0.6527	0.6622	6.0760	0.0134	1.5185	9.5300e-003	1.5280	0.4048	8.8500e-003	0.4136		1,391.9928	1,391.9928	0.0915	0.0610	1,412.4493
Total	**2.1642**	**0.8362**	**8.9402**	**0.0145**	**1.5185**	**0.0365**	**1.5550**	**0.4048**	**0.0359**	**0.4406**	**0.0000**	**1,577.9253**	**1,577.9253**	**0.0998**	**0.0643**	**1,599.5778**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	4.12	15.78	13.96	21.97	23.80	6.76	23.47	23.80	6.45	22.63	0.00	21.14	21.14	15.73	18.05	21.09

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/16/2022	6/22/2022	5	28	
2	Site Preparation	Site Preparation	6/23/2022	6/27/2022	5	3	
3	Grading	Grading	6/28/2022	7/5/2022	5	6	
4	Building Construction	Building Construction	7/6/2022	7/28/2023	5	278	
5	Paving	Paving	7/29/2023	8/17/2023	5	14	
6	Architectural Coating	Architectural Coating	8/18/2023	9/6/2023	5	14	

Acres of Grading (Site Preparation Phase): 2.81

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.65

Residential Indoor: 131,625; Residential Outdoor: 43,875; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,699 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Demolition	5	13.00	6.00	179.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	50.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	36.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3841	0.0000	1.3841	0.2096	0.0000	0.2096			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**1.3841**	**0.8379**	**2.2220**	**0.2096**	**0.7829**	**0.9924**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

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	0.0253	1.0344	0.2837	3.8200e-003	0.1115	7.5500e-003	0.1190	0.0305	7.2200e-003	0.0378		432.3215	432.3215	0.0412	0.0692	453.9852
Vendor	9.8400e-003	0.2798	0.0990	1.1400e-003	0.0384	2.6300e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4536	124.4536	7.1200e-003	0.0179	129.9502
Worker	0.0426	0.0289	0.3981	1.2100e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		122.6631	122.6631	3.0800e-003	3.0600e-003	123.6524
Total	**0.0777**	**1.3431**	**0.7808**	**6.1700e-003**	**0.2952**	**0.0110**	**0.3061**	**0.0801**	**0.0105**	**0.0906**		**679.4382**	**679.4382**	**0.0514**	**0.0902**	**707.5878**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5398	0.0000	0.5398	0.0817	0.0000	0.0817			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.5398**	**0.8379**	**1.3777**	**0.0817**	**0.7829**	**0.8646**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

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	0.0253	1.0344	0.2837	3.8200e-003	0.1115	7.5500e-003	0.1190	0.0305	7.2200e-003	0.0378		432.3215	432.3215	0.0412	0.0692	453.9852
Vendor	9.8400e-003	0.2798	0.0990	1.1400e-003	0.0384	2.6300e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4536	124.4536	7.1200e-003	0.0179	129.9502
Worker	0.0426	0.0289	0.3981	1.2100e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		122.6631	122.6631	3.0800e-003	3.0600e-003	123.6524
Total	**0.0777**	**1.3431**	**0.7808**	**6.1700e-003**	**0.2952**	**0.0110**	**0.3061**	**0.0801**	**0.0105**	**0.0906**		**679.4382**	**679.4382**	**0.0514**	**0.0902**	**707.5878**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.2627	0.0000	6.2627	3.0037	0.0000	3.0037			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727		1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**6.2627**	**0.6225**	**6.8852**	**3.0037**	**0.5727**	**3.5764**		**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8400e-003	0.2798	0.0990	1.1400e-003	0.0384	2.6300e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4536	124.4536	7.1200e-003	0.0179	129.9502
Worker	0.0262	0.0178	0.2450	7.4000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		75.4850	75.4850	1.8900e-003	1.8800e-003	76.0938
Total	**0.0361**	**0.2975**	**0.3440**	**1.8800e-003**	**0.1278**	**3.1100e-003**	**0.1309**	**0.0348**	**2.9500e-003**	**0.0377**		**199.9386**	**199.9386**	**9.0100e-003**	**0.0197**	**206.0440**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4424	0.0000	2.4424	1.1715	0.0000	1.1715			0.0000			0.0000
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727	0.0000	1,666.1738	1,666.1738	0.5389		1,679.6457
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**2.4424**	**0.6225**	**3.0650**	**1.1715**	**0.5727**	**1.7442**	**0.0000**	**1,666.1738**	**1,666.1738**	**0.5389**		**1,679.6457**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.8400e-003	0.2798	0.0990	1.1400e-003	0.0384	2.6300e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4536	124.4536	7.1200e-003	0.0179	129.9502
Worker	0.0262	0.0178	0.2450	7.4000e-004	0.0894	4.8000e-004	0.0899	0.0237	4.4000e-004	0.0242		75.4850	75.4850	1.8900e-003	1.8800e-003	76.0938
Total	**0.0361**	**0.2975**	**0.3440**	**1.8800e-003**	**0.1278**	**3.1100e-003**	**0.1309**	**0.0348**	**2.9500e-003**	**0.0377**		**199.9386**	**199.9386**	**9.0100e-003**	**0.0197**	**206.0440**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0901	0.0000	7.0901	3.4259	0.0000	3.4259			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0901**	**0.7423**	**7.8324**	**3.4259**	**0.6829**	**4.1088**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0329	1.3484	0.3698	4.9700e-003	0.1453	9.8400e-003	0.1552	0.0398	9.4100e-003	0.0492		563.5475	563.5475	0.0537	0.0903	591.7870
Vendor	9.8400e-003	0.2798	0.0990	1.1400e-003	0.0384	2.6300e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4536	124.4536	7.1200e-003	0.0179	129.9502
Worker	0.0328	0.0222	0.3062	9.3000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.6000e-004	0.0302		94.3562	94.3562	2.3700e-003	2.3600e-003	95.1173
Total	**0.0756**	**1.6504**	**0.7750**	**7.0400e-003**	**0.2955**	**0.0131**	**0.3086**	**0.0805**	**0.0125**	**0.0930**		**782.3574**	**782.3574**	**0.0631**	**0.1105**	**816.8545**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7652	0.0000	2.7652	1.3361	0.0000	1.3361			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**2.7652**	**0.7423**	**3.5074**	**1.3361**	**0.6829**	**2.0190**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	0.0329	1.3484	0.3698	4.9700e-003	0.1453	9.8400e-003	0.1552	0.0398	9.4100e-003	0.0492		563.5475	563.5475	0.0537	0.0903	591.7870
Vendor	9.8400e-003	0.2798	0.0990	1.1400e-003	0.0384	2.6300e-003	0.0410	0.0110	2.5100e-003	0.0136		124.4536	124.4536	7.1200e-003	0.0179	129.9502
Worker	0.0328	0.0222	0.3062	9.3000e-004	0.1118	6.0000e-004	0.1124	0.0296	5.6000e-004	0.0302		94.3562	94.3562	2.3700e-003	2.3600e-003	95.1173
Total	**0.0756**	**1.6504**	**0.7750**	**7.0400e-003**	**0.2955**	**0.0131**	**0.3086**	**0.0805**	**0.0125**	**0.0930**		**782.3574**	**782.3574**	**0.0631**	**0.1105**	**816.8545**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0131	0.3730	0.1320	1.5200e-003	0.0512	3.5000e-003	0.0547	0.0147	3.3500e-003	0.0181		165.9381	165.9381	9.4900e-003	0.0238	173.2669
Worker	0.1180	0.0799	1.1025	3.3400e-003	0.4024	2.1700e-003	0.4046	0.1067	2.0000e-003	0.1087		339.6824	339.6824	8.5300e-003	8.4800e-003	342.4221
Total	**0.1311**	**0.4530**	**1.2345**	**4.8600e-003**	**0.4536**	**5.6700e-003**	**0.4592**	**0.1214**	**5.3500e-003**	**0.1268**		**505.6205**	**505.6205**	**0.0180**	**0.0323**	**515.6890**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0131	0.3730	0.1320	1.5200e-003	0.0512	3.5000e-003	0.0547	0.0147	3.3500e-003	0.0181		165.9381	165.9381	9.4900e-003	0.0238	173.2669
Worker	0.1180	0.0799	1.1025	3.3400e-003	0.4024	2.1700e-003	0.4046	0.1067	2.0000e-003	0.1087		339.6824	339.6824	8.5300e-003	8.4800e-003	342.4221
Total	**0.1311**	**0.4530**	**1.2345**	**4.8600e-003**	**0.4536**	**5.6700e-003**	**0.4592**	**0.1214**	**5.3500e-003**	**0.1268**		**505.6205**	**505.6205**	**0.0180**	**0.0323**	**515.6890**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8000e-003	0.2929	0.1200	1.4400e-003	0.0512	1.4500e-003	0.0526	0.0147	1.3800e-003	0.0161		158.1918	158.1918	9.3700e-003	0.0227	165.1956
Worker	0.1109	0.0713	1.0269	3.2300e-003	0.4024	2.0600e-003	0.4045	0.1067	1.8900e-003	0.1086		330.8963	330.8963	7.7300e-003	7.8900e-003	333.4402
Total	**0.1187**	**0.3641**	**1.1469**	**4.6700e-003**	**0.4536**	**3.5100e-003**	**0.4571**	**0.1214**	**3.2700e-003**	**0.1247**		**489.0882**	**489.0882**	**0.0171**	**0.0306**	**498.6358**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8000e-003	0.2929	0.1200	1.4400e-003	0.0512	1.4500e-003	0.0526	0.0147	1.3800e-003	0.0161		158.1918	158.1918	9.3700e-003	0.0227	165.1956
Worker	0.1109	0.0713	1.0269	3.2300e-003	0.4024	2.0600e-003	0.4045	0.1067	1.8900e-003	0.1086		330.8963	330.8963	7.7300e-003	7.8900e-003	333.4402
Total	**0.1187**	**0.3641**	**1.1469**	**4.6700e-003**	**0.4536**	**3.5100e-003**	**0.4571**	**0.1214**	**3.2700e-003**	**0.1247**		**489.0882**	**489.0882**	**0.0171**	**0.0306**	**498.6358**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1216					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7662**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0400	0.0257	0.3708	1.1700e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		119.4903	119.4903	2.7900e-003	2.8500e-003	120.4090
Total	**0.0400**	**0.0257**	**0.3708**	**1.1700e-003**	**0.1453**	**7.4000e-004**	**0.1461**	**0.0385**	**6.8000e-004**	**0.0392**		**119.4903**	**119.4903**	**2.7900e-003**	**2.8500e-003**	**120.4090**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.1216					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7662**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0400	0.0257	0.3708	1.1700e-003	0.1453	7.4000e-004	0.1461	0.0385	6.8000e-004	0.0392		119.4903	119.4903	2.7900e-003	2.8500e-003	120.4090
Total	**0.0400**	**0.0257**	**0.3708**	**1.1700e-003**	**0.1453**	**7.4000e-004**	**0.1461**	**0.0385**	**6.8000e-004**	**0.0392**		**119.4903**	**119.4903**	**2.7900e-003**	**2.8500e-003**	**120.4090**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	29.6140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**29.8057**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0139	0.1997	6.3000e-004	0.0782	4.0000e-004	0.0786	0.0208	3.7000e-004	0.0211		64.3410	64.3410	1.5000e-003	1.5300e-003	64.8356
Total	**0.0216**	**0.0139**	**0.1997**	**6.3000e-004**	**0.0782**	**4.0000e-004**	**0.0786**	**0.0208**	**3.7000e-004**	**0.0211**		**64.3410**	**64.3410**	**1.5000e-003**	**1.5300e-003**	**64.8356**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	29.6140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**29.8057**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0216	0.0139	0.1997	6.3000e-004	0.0782	4.0000e-004	0.0786	0.0208	3.7000e-004	0.0211		64.3410	64.3410	1.5000e-003	1.5300e-003	64.8356
Total	**0.0216**	**0.0139**	**0.1997**	**6.3000e-004**	**0.0782**	**4.0000e-004**	**0.0786**	**0.0208**	**3.7000e-004**	**0.0211**		**64.3410**	**64.3410**	**1.5000e-003**	**1.5300e-003**	**64.8356**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6527	0.6622	6.0760	0.0134	1.5185	9.5300e-003	1.5280	0.4048	8.8500e-003	0.4136		1,391.9928	1,391.9928	0.0915	0.0610	1,412.4493
Unmitigated	0.7457	0.8188	7.5263	0.0175	1.9928	0.0122	2.0049	0.5312	0.0113	0.5425		1,814.9084	1,814.9084	0.1101	0.0751	1,840.0487

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	184.96	276.76	213.52	690,792	526,390
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	184.96	276.76	213.52	690,792	526,390

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869
Other Asphalt Surfaces	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

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	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
NaturalGas Unmitigated	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Condo/Townhouse	1537.49	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0166**	**0.1417**	**0.0603**	**9.0000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**		**180.8815**	**180.8815**	**3.4700e-003**	**3.3200e-003**	**181.9564**

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					
Condo/Townhouse	1.53749	0.0166	0.1417	0.0603	9.0000e-004		0.0115	0.0115		0.0115	0.0115		180.8815	180.8815	3.4700e-003	3.3200e-003	181.9564
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0166**	**0.1417**	**0.0603**	**9.0000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**		**180.8815**	**180.8815**	**3.4700e-003**	**3.3200e-003**	**181.9564**

6.0 Area Detail

West Broadway Townhomes - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721
Unmitigated	1.4949	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	5.0509	5.0509	4.8500e-003	0.0000	5.1721

West Broadway Townhomes - Orange County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.1136					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0843	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155		5.0509	5.0509	4.8500e-003		5.1721
Total	**1.4949**	**0.0323**	**2.8039**	**1.5000e-004**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**5.0509**	**5.0509**	**4.8500e-003**	**0.0000**	**5.1721**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.1136					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.2970					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0843	0.0323	2.8039	1.5000e-004		0.0155	0.0155		0.0155	0.0155		5.0509	5.0509	4.8500e-003		5.1721
Total	**1.4949**	**0.0323**	**2.8039**	**1.5000e-004**		**0.0155**	**0.0155**		**0.0155**	**0.0155**	**0.0000**	**5.0509**	**5.0509**	**4.8500e-003**	**0.0000**	**5.1721**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

EMFAC2017 Model Printouts

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SOUTH COAST
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SOUTH CO.	2022	HHDT	Aggregatec	Aggregatec	GAS	77.19581	7790.40352	1544.534	1.875688287
SOUTH CO.	2022	LDA	Aggregatec	Aggregatec	GAS	6370883	246404319.3	30101253	7989.700531
SOUTH CO.	2022	LDT1	Aggregatec	Aggregatec	GAS	716397.4	26563674.69	3305301	1003.18171
SOUTH CO.	2022	LDT2	Aggregatec	Aggregatec	GAS	2182002	82381240.23	10234301	3339.886942
SOUTH CO.	2022	LHDT1	Aggregatec	Aggregatec	GAS	171358.6	6138928.512	2552988	583.2281345
SOUTH CO.	2022	LHDT2	Aggregatec	Aggregatec	GAS	29049.29	1009215.767	432791.1	110.1260053
SOUTH CO.	2022	MCY	Aggregatec	Aggregatec	GAS	288756.3	1994249.265	577512.7	54.92216124
SOUTH CO.	2022	MDV	Aggregatec	Aggregatec	GAS	1530646	54105469.86	7077024	2704.447563
SOUTH CO.	2022	MH	Aggregatec	Aggregatec	GAS	34090.76	324253.0827	3410.439	62.96118679
SOUTH CO.	2022	MHDT	Aggregatec	Aggregatec	GAS	24783.34	1316472.619	495865	259.391887
SOUTH CO.	2022	OBUS	Aggregatec	Aggregatec	GAS	5832.051	240794.901	116687.7	47.77312679
SOUTH CO.	2022	SBUS	Aggregatec	Aggregatec	GAS	2563.073	102707.6059	10252.29	11.26572543
SOUTH CO.	2022	UBUS	Aggregatec	Aggregatec	GAS	952.146	89255.99818	3808.584	18.40085629

vehicle miles per day (All Categories)	420678372	16,187	1,000 gall per day
		16,187,162	gallons per day
Fleet Avg Miles per gallon	26.0		

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SOUTH COAST
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SOUTH CO.	2022	HHDT	Aggregate	Aggregate	DSL	98507.93	11795119.18	994224.5278	1762.986535
SOUTH CO.	2022	LDA	Aggregate	Aggregate	DSL	57443	2304136.238	272823.0302	47.39159146
SOUTH CO.	2022	LDT1	Aggregate	Aggregate	DSL	378.1209	8809.098622	1319.110799	0.391172549
SOUTH CO.	2022	LDT2	Aggregate	Aggregate	DSL	13854.2	592642.9638	68308.95137	16.65070839
SOUTH CO.	2022	LHDT1	Aggregate	Aggregate	DSL	115788.9	4681447.455	1456478.318	217.1134019
SOUTH CO.	2022	LHDT2	Aggregate	Aggregate	DSL	45909.32	1809192.293	577481.5034	92.8866097
SOUTH CO.	2022	MDV	Aggregate	Aggregate	DSL	32417.61	1305872.927	158948.6889	47.80332863
SOUTH CO.	2022	MH	Aggregate	Aggregate	DSL	12198.84	117488.268	1219.883938	11.12023591
SOUTH CO.	2022	MHDT	Aggregate	Aggregate	DSL	119796	7716034.126	1201941.571	720.1602731
SOUTH CO.	2022	OBUS	Aggregate	Aggregate	DSL	4149.674	316404.315	40441.57981	37.45917989
SOUTH CO.	2022	SBUS	Aggregate	Aggregate	DSL	6354.465	200786.3158	73329.64442	26.4174734
SOUTH CO.	2022	UBUS	Aggregate	Aggregate	DSL	14.14142	1478.085683	56.56567323	0.246796198

Diesel Truck (HHDT, MDV, MHDT) vehicle miles per day	20,817,026	2,531	1,000 gall per day
		2,530,950	gallons per day
Diesel Truck Fleet Avg Miles per gallon	8.2		

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air Basin
Region: SOUTH COAST
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
SOUTH CO.	2024	HHDT	Aggregate	Aggregate	GAS	73.4	8361	1468	1.9
SOUTH CO.	2024	LDA	Aggregate	Aggregate	GAS	6543321.5	247047080	30912773	7604.7
SOUTH CO.	2024	LDT1	Aggregate	Aggregate	GAS	758038.3	27517267	3506784	990.1
SOUTH CO.	2024	LDT2	Aggregate	Aggregate	GAS	2256847.0	83361536	10593017	3162.7
SOUTH CO.	2024	LHDT1	Aggregate	Aggregate	GAS	169468.4	5984463	2524826	556.7
SOUTH CO.	2024	LHDT2	Aggregate	Aggregate	GAS	29259.5	998729	435923	106.8
SOUTH CO.	2024	MCY	Aggregate	Aggregate	GAS	306168.3	2050950	612337	56.8
SOUTH CO.	2024	MDV	Aggregate	Aggregate	GAS	1550012.1	53715244	7176828	2521.8
SOUTH CO.	2024	MH	Aggregate	Aggregate	GAS	33327.2	318279	3334	60.1
SOUTH CO.	2024	MHDT	Aggregate	Aggregate	GAS	25072.2	1303434	501644	250.5
SOUTH CO.	2024	OBUS	Aggregate	Aggregate	GAS	5824.2	231713	116530	44.8
SOUTH CO.	2024	SBUS	Aggregate	Aggregate	GAS	2862.3	111917	11449	12.1
SOUTH CO.	2024	UBUS	Aggregate	Aggregate	GAS	963.4	90309	3854	17.1

vehicle miles per day (All Categories)	422739281	15,386	1,000 gall per day
		15,386,053	gallons per day

Fleet Avg Miles per gallon	27.5

APPENDIX C

CalEEMod Model Annual Printouts

West Broadway Townhomes - Orange County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

West Broadway Townhomes

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.65	Acre	0.65	28,314.00	0
Condo/Townhouse	34.00	Dwelling Unit	0.90	65,000.00	97

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2024
Utility Company	Anaheim Public Utilities				
CO2 Intensity (lb/MWhr)	1543.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site 1.55 acres

Construction Phase - Construction schedule extended by 40 percent to match project applicant's construction schedule

Trips and VMT - 6 vendor trips per day added to Demolition, Site Prep and Grading to account for water truck emissions.

Demolition - Demo - 14,144 sq ft of building = 651 tons + 48,000 sq ft of pavement = 1,160 tons. Total 1,811 tons of debris

Grading - Grading 400 cu yds import

Vehicle Trips - Weekday Trip Rate set to 5.44 trips per home from Traffic Analysis

Woodstoves - No woodstoves or fireplaces would be constructed on project site.

Construction Off-road Equipment Mitigation - Water Exposed Area 3 times per day selected to account for SCAQMD Rule 403 minimum requirements.

Mobile Land Use Mitigation - Increase Transit Accessibility 0.07 mile to bus stop. Improve Ped Network on Project Site and Connecting Offsite

Water Mitigation - Install low flow fixtures and water-efficient irrigation selected to account for Title 24 Part 11 requirements

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Waste Mitigation - 50% reduction in waste selected to account for AB 341.

Energy Mitigation - 105,346 kWh generated from solar PV panels

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	200.00	278.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	4.00	6.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	2.00	3.00
tblFireplaces	NumberGas	28.90	0.00
tblFireplaces	NumberNoFireplace	3.40	34.00
tblFireplaces	NumberWood	1.70	0.00
tblGrading	MaterialImported	0.00	400.00
tblLandUse	LandUseSquareFeet	34,000.00	65,000.00
tblLandUse	LotAcreage	2.13	0.90
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	WD_TR	7.32	5.44
tblWoodstoves	NumberCatalytic	1.70	0.00
tblWoodstoves	NumberNoncatalytic	1.70	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1449	1.1596	1.1426	2.2600e-003	0.0837	0.0531	0.1368	0.0268	0.0508	0.0776	0.0000	194.0939	194.0939	0.0321	3.3500e-003	195.8966
2023	0.3369	0.9588	1.1118	2.1400e-003	0.0350	0.0415	0.0765	9.3700e-003	0.0400	0.0494	0.0000	180.9834	180.9834	0.0270	2.1200e-003	182.2902
Maximum	**0.3369**	**1.1596**	**1.1426**	**2.2600e-003**	**0.0837**	**0.0531**	**0.1368**	**0.0268**	**0.0508**	**0.0776**	**0.0000**	**194.0939**	**194.0939**	**0.0321**	**3.3500e-003**	**195.8966**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1449	1.1596	1.1426	2.2600e-003	0.0532	0.0531	0.1063	0.0160	0.0508	0.0668	0.0000	194.0937	194.0937	0.0321	3.3500e-003	195.8964
2023	0.3369	0.9588	1.1118	2.1400e-003	0.0350	0.0415	0.0765	9.3700e-003	0.0400	0.0494	0.0000	180.9832	180.9832	0.0270	2.1200e-003	182.2900
Maximum	**0.3369**	**1.1596**	**1.1426**	**2.2600e-003**	**0.0532**	**0.0531**	**0.1063**	**0.0160**	**0.0508**	**0.0668**	**0.0000**	**194.0937**	**194.0937**	**0.0321**	**3.3500e-003**	**195.8964**

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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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	25.72	0.00	14.31	29.92	0.00	8.51	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-16-2022	8-15-2022	0.5691	0.5691
2	8-16-2022	11-15-2022	0.4837	0.4837
3	11-16-2022	2-15-2023	0.4674	0.4674
4	2-16-2023	5-15-2023	0.4355	0.4355
5	5-16-2023	8-15-2023	0.4072	0.4072
6	8-16-2023	9-30-2023	0.2275	0.2275
		Highest	0.5691	0.5691

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2680	4.0400e-003	0.3505	2.0000e-005		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	0.5728	0.5728	5.5000e-004	0.0000	0.5865
Energy	3.0300e-003	0.0259	0.0110	1.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	144.9595	144.9595	2.7400e-003	1.0000e-003	145.3247
Mobile	0.0970	0.1104	1.0074	2.3500e-003	0.2602	1.6200e-003	0.2618	0.0695	1.5000e-003	0.0710	0.0000	220.9632	220.9632	0.0132	9.1100e-003	224.0086
Waste						0.0000	0.0000		0.0000	0.0000	3.1748	0.0000	3.1748	0.1876	0.0000	7.8654
Water						0.0000	0.0000		0.0000	0.0000	0.7028	31.0532	31.7560	0.0728	1.8300e-003	34.1190
Total	**0.3680**	**0.1403**	**1.3689**	**2.5400e-003**	**0.2602**	**5.6500e-003**	**0.2659**	**0.0695**	**5.5300e-003**	**0.0750**	**3.8776**	**397.5486**	**401.4262**	**0.2769**	**0.0119**	**411.9042**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.2680	4.0400e-003	0.3505	2.0000e-005		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	0.5728	0.5728	5.5000e-004	0.0000	0.5865
Energy	3.0300e-003	0.0259	0.0110	1.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	71.2152	71.2152	1.3500e-003	7.1000e-004	71.4603
Mobile	0.0847	0.0891	0.8116	1.8000e-003	0.1983	1.2600e-003	0.1996	0.0529	1.1800e-003	0.0541	0.0000	169.4587	169.4587	0.0110	7.3800e-003	171.9330
Waste						0.0000	0.0000		0.0000	0.0000	1.5874	0.0000	1.5874	0.0938	0.0000	3.9327
Water						0.0000	0.0000		0.0000	0.0000	0.5622	26.3523	26.9145	0.0582	1.4700e-003	28.8074
Total	**0.3557**	**0.1190**	**1.1731**	**1.9900e-003**	**0.1983**	**5.2900e-003**	**0.2036**	**0.0529**	**5.2100e-003**	**0.0581**	**2.1496**	**267.5989**	**269.7486**	**0.1649**	**9.5600e-003**	**276.7200**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.36**	**15.17**	**14.30**	**21.65**	**23.80**	**6.37**	**23.42**	**23.80**	**5.79**	**22.48**	**44.56**	**32.69**	**32.80**	**40.44**	**19.93**	**32.82**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/16/2022	6/22/2022	5	28	
2	Site Preparation	Site Preparation	6/23/2022	6/27/2022	5	3	
3	Grading	Grading	6/28/2022	7/5/2022	5	6	

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4	Building Construction	Building Construction	7/6/2022	7/28/2023	5	278	
5	Paving	Paving	7/29/2023	8/17/2023	5	14	
6	Architectural Coating	Architectural Coating	8/18/2023	9/6/2023	5	14	

Acres of Grading (Site Preparation Phase): 2.81

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.65

Residential Indoor: 131,625; Residential Outdoor: 43,875; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,699 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Demolition	5	13.00	6.00	179.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	6.00	50.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	36.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0194	0.0000	0.0194	2.9300e-003	0.0000	2.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.2327	0.1955	3.4000e-004		0.0117	0.0117		0.0110	0.0110	0.0000	29.5088	29.5088	7.5200e-003	0.0000	29.6968
Total	**0.0237**	**0.2327**	**0.1955**	**3.4000e-004**	**0.0194**	**0.0117**	**0.0311**	**2.9300e-003**	**0.0110**	**0.0139**	**0.0000**	**29.5088**	**29.5088**	**7.5200e-003**	**0.0000**	**29.6968**

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	3.6000e-004	0.0147	3.9400e-003	5.0000e-005	1.5400e-003	1.1000e-004	1.6400e-003	4.2000e-004	1.0000e-004	5.2000e-004	0.0000	5.4900	5.4900	5.2000e-004	8.8000e-004	5.7651
Vendor	1.4000e-004	3.9500e-003	1.3600e-003	2.0000e-005	5.3000e-004	4.0000e-005	5.7000e-004	1.5000e-004	4.0000e-005	1.9000e-004	0.0000	1.5804	1.5804	9.0000e-005	2.3000e-004	1.6502
Worker	5.5000e-004	4.1000e-004	5.7000e-003	2.0000e-005	2.0000e-003	1.0000e-005	2.0100e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.5791	1.5791	4.0000e-005	4.0000e-005	1.5918
Total	**1.0500e-003**	**0.0190**	**0.0110**	**9.0000e-005**	**4.0700e-003**	**1.6000e-004**	**4.2200e-003**	**1.1000e-003**	**1.5000e-004**	**1.2500e-003**	**0.0000**	**8.6494**	**8.6494**	**6.5000e-004**	**1.1500e-003**	**9.0070**

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3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5600e-003	0.0000	7.5600e-003	1.1400e-003	0.0000	1.1400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.2327	0.1955	3.4000e-004		0.0117	0.0117		0.0110	0.0110	0.0000	29.5087	29.5087	7.5200e-003	0.0000	29.6967
Total	**0.0237**	**0.2327**	**0.1955**	**3.4000e-004**	**7.5600e-003**	**0.0117**	**0.0193**	**1.1400e-003**	**0.0110**	**0.0121**	**0.0000**	**29.5087**	**29.5087**	**7.5200e-003**	**0.0000**	**29.6967**

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	3.6000e-004	0.0147	3.9400e-003	5.0000e-005	1.5400e-003	1.1000e-004	1.6400e-003	4.2000e-004	1.0000e-004	5.2000e-004	0.0000	5.4900	5.4900	5.2000e-004	8.8000e-004	5.7651
Vendor	1.4000e-004	3.9500e-003	1.3600e-003	2.0000e-005	5.3000e-004	4.0000e-005	5.7000e-004	1.5000e-004	4.0000e-005	1.9000e-004	0.0000	1.5804	1.5804	9.0000e-005	2.3000e-004	1.6502
Worker	5.5000e-004	4.1000e-004	5.7000e-003	2.0000e-005	2.0000e-003	1.0000e-005	2.0100e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.5791	1.5791	4.0000e-005	4.0000e-005	1.5918
Total	**1.0500e-003**	**0.0190**	**0.0110**	**9.0000e-005**	**4.0700e-003**	**1.6000e-004**	**4.2200e-003**	**1.1000e-003**	**1.5000e-004**	**1.2500e-003**	**0.0000**	**8.6494**	**8.6494**	**6.5000e-004**	**1.1500e-003**	**9.0070**

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3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.3900e-003	0.0000	9.3900e-003	4.5100e-003	0.0000	4.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0219	0.0106	3.0000e-005		9.3000e-004	9.3000e-004		8.6000e-004	8.6000e-004	0.0000	2.2673	2.2673	7.3000e-004	0.0000	2.2856
Total	**1.9700e-003**	**0.0219**	**0.0106**	**3.0000e-005**	**9.3900e-003**	**9.3000e-004**	**0.0103**	**4.5100e-003**	**8.6000e-004**	**5.3700e-003**	**0.0000**	**2.2673**	**2.2673**	**7.3000e-004**	**0.0000**	**2.2856**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.2000e-004	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1693	0.1693	1.0000e-005	2.0000e-005	0.1768
Worker	4.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1041	0.1041	0.0000	0.0000	0.1050
Total	**5.0000e-005**	**4.5000e-004**	**5.3000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2734**	**0.2734**	**1.0000e-005**	**2.0000e-005**	**0.2818**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.6600e-003	0.0000	3.6600e-003	1.7600e-003	0.0000	1.7600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0219	0.0106	3.0000e-005		9.3000e-004	9.3000e-004		8.6000e-004	8.6000e-004	0.0000	2.2673	2.2673	7.3000e-004	0.0000	2.2856
Total	**1.9700e-003**	**0.0219**	**0.0106**	**3.0000e-005**	**3.6600e-003**	**9.3000e-004**	**4.5900e-003**	**1.7600e-003**	**8.6000e-004**	**2.6200e-003**	**0.0000**	**2.2673**	**2.2673**	**7.3000e-004**	**0.0000**	**2.2856**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.2000e-004	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1693	0.1693	1.0000e-005	2.0000e-005	0.1768
Worker	4.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1041	0.1041	0.0000	0.0000	0.1050
Total	**5.0000e-005**	**4.5000e-004**	**5.3000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2734**	**0.2734**	**1.0000e-005**	**2.0000e-005**	**0.2818**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0213	0.0000	0.0213	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6200e-003	0.0510	0.0277	6.0000e-005		2.2300e-003	2.2300e-003		2.0500e-003	2.0500e-003	0.0000	5.4308	5.4308	1.7600e-003	0.0000	5.4747
Total	**4.6200e-003**	**0.0510**	**0.0277**	**6.0000e-005**	**0.0213**	**2.2300e-003**	**0.0235**	**0.0103**	**2.0500e-003**	**0.0123**	**0.0000**	**5.4308**	**5.4308**	**1.7600e-003**	**0.0000**	**5.4747**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	4.0900e-003	1.1000e-003	1.0000e-005	4.3000e-004	3.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.5335	1.5335	1.5000e-004	2.5000e-004	1.6104
Vendor	3.0000e-005	8.5000e-004	2.9000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3387	0.3387	2.0000e-005	5.0000e-005	0.3536
Worker	9.0000e-005	7.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2603	0.2603	1.0000e-005	1.0000e-005	0.2624
Total	**2.2000e-004**	**5.0100e-003**	**2.3300e-003**	**1.0000e-005**	**8.7000e-004**	**4.0000e-005**	**9.1000e-004**	**2.4000e-004**	**4.0000e-005**	**2.8000e-004**	**0.0000**	**2.1325**	**2.1325**	**1.8000e-004**	**3.1000e-004**	**2.2263**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.3000e-003	0.0000	8.3000e-003	4.0100e-003	0.0000	4.0100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6200e-003	0.0510	0.0277	6.0000e-005		2.2300e-003	2.2300e-003		2.0500e-003	2.0500e-003	0.0000	5.4308	5.4308	1.7600e-003	0.0000	5.4747
Total	**4.6200e-003**	**0.0510**	**0.0277**	**6.0000e-005**	**8.3000e-003**	**2.2300e-003**	**0.0105**	**4.0100e-003**	**2.0500e-003**	**6.0600e-003**	**0.0000**	**5.4308**	**5.4308**	**1.7600e-003**	**0.0000**	**5.4747**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	4.0900e-003	1.1000e-003	1.0000e-005	4.3000e-004	3.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	1.5335	1.5335	1.5000e-004	2.5000e-004	1.6104
Vendor	3.0000e-005	8.5000e-004	2.9000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3387	0.3387	2.0000e-005	5.0000e-005	0.3536
Worker	9.0000e-005	7.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2603	0.2603	1.0000e-005	1.0000e-005	0.2624
Total	**2.2000e-004**	**5.0100e-003**	**2.3300e-003**	**1.0000e-005**	**8.7000e-004**	**4.0000e-005**	**9.1000e-004**	**2.4000e-004**	**4.0000e-005**	**2.8000e-004**	**0.0000**	**2.1325**	**2.1325**	**1.8000e-004**	**3.1000e-004**	**2.2263**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1055	0.8002	0.8145	1.4100e-003		0.0377	0.0377		0.0364	0.0364	0.0000	116.2092	116.2092	0.0202	0.0000	116.7152
Total	**0.1055**	**0.8002**	**0.8145**	**1.4100e-003**		**0.0377**	**0.0377**		**0.0364**	**0.0364**	**0.0000**	**116.2092**	**116.2092**	**0.0202**	**0.0000**	**116.7152**

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	8.4000e-004	0.0241	8.2900e-003	1.0000e-004	3.2300e-003	2.2000e-004	3.4500e-003	9.3000e-004	2.1000e-004	1.1400e-003	0.0000	9.6326	9.6326	5.5000e-004	1.3800e-003	10.0581
Worker	6.9400e-003	5.2200e-003	0.0722	2.2000e-004	0.0253	1.4000e-004	0.0254	6.7200e-003	1.3000e-004	6.8400e-003	0.0000	19.9899	19.9899	4.9000e-004	5.0000e-004	20.1511
Total	**7.7800e-003**	**0.0293**	**0.0805**	**3.2000e-004**	**0.0285**	**3.6000e-004**	**0.0289**	**7.6500e-003**	**3.4000e-004**	**7.9800e-003**	**0.0000**	**29.6225**	**29.6225**	**1.0400e-003**	**1.8800e-003**	**30.2091**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1055	0.8002	0.8145	1.4100e-003		0.0377	0.0377		0.0364	0.0364	0.0000	116.2091	116.2091	0.0202	0.0000	116.7151
Total	**0.1055**	**0.8002**	**0.8145**	**1.4100e-003**		**0.0377**	**0.0377**		**0.0364**	**0.0364**	**0.0000**	**116.2091**	**116.2091**	**0.0202**	**0.0000**	**116.7151**

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	8.4000e-004	0.0241	8.2900e-003	1.0000e-004	3.2300e-003	2.2000e-004	3.4500e-003	9.3000e-004	2.1000e-004	1.1400e-003	0.0000	9.6326	9.6326	5.5000e-004	1.3800e-003	10.0581
Worker	6.9400e-003	5.2200e-003	0.0722	2.2000e-004	0.0253	1.4000e-004	0.0254	6.7200e-003	1.3000e-004	6.8400e-003	0.0000	19.9899	19.9899	4.9000e-004	5.0000e-004	20.1511
Total	**7.7800e-003**	**0.0293**	**0.0805**	**3.2000e-004**	**0.0285**	**3.6000e-004**	**0.0289**	**7.6500e-003**	**3.4000e-004**	**7.9800e-003**	**0.0000**	**29.6225**	**29.6225**	**1.0400e-003**	**1.8800e-003**	**30.2091**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1142	0.8783	0.9458	1.6500e-003		0.0386	0.0386		0.0373	0.0373	0.0000	136.1993	136.1993	0.0231	0.0000	136.7775
Total	**0.1142**	**0.8783**	**0.9458**	**1.6500e-003**		**0.0386**	**0.0386**		**0.0373**	**0.0373**	**0.0000**	**136.1993**	**136.1993**	**0.0231**	**0.0000**	**136.7775**

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	6.0000e-004	0.0220	8.8500e-003	1.1000e-004	3.7800e-003	1.1000e-004	3.8900e-003	1.0900e-003	1.0000e-004	1.1900e-003	0.0000	10.7540	10.7540	6.4000e-004	1.5400e-003	11.2302
Worker	7.6300e-003	5.4500e-003	0.0788	2.5000e-004	0.0296	1.5000e-004	0.0298	7.8700e-003	1.4000e-004	8.0100e-003	0.0000	22.8188	22.8188	5.2000e-004	5.4000e-004	22.9942
Total	**8.2300e-003**	**0.0275**	**0.0876**	**3.6000e-004**	**0.0334**	**2.6000e-004**	**0.0337**	**8.9600e-003**	**2.4000e-004**	**9.2000e-003**	**0.0000**	**33.5729**	**33.5729**	**1.1600e-003**	**2.0800e-003**	**34.2244**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1142	0.8783	0.9458	1.6500e-003		0.0386	0.0386		0.0373	0.0373	0.0000	136.1992	136.1992	0.0231	0.0000	136.7774
Total	**0.1142**	**0.8783**	**0.9458**	**1.6500e-003**		**0.0386**	**0.0386**		**0.0373**	**0.0373**	**0.0000**	**136.1992**	**136.1992**	**0.0231**	**0.0000**	**136.7774**

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	6.0000e-004	0.0220	8.8500e-003	1.1000e-004	3.7800e-003	1.1000e-004	3.8900e-003	1.0900e-003	1.0000e-004	1.1900e-003	0.0000	10.7540	10.7540	6.4000e-004	1.5400e-003	11.2302
Worker	7.6300e-003	5.4500e-003	0.0788	2.5000e-004	0.0296	1.5000e-004	0.0298	7.8700e-003	1.4000e-004	8.0100e-003	0.0000	22.8188	22.8188	5.2000e-004	5.4000e-004	22.9942
Total	**8.2300e-003**	**0.0275**	**0.0876**	**3.6000e-004**	**0.0334**	**2.6000e-004**	**0.0337**	**8.9600e-003**	**2.4000e-004**	**9.2000e-003**	**0.0000**	**33.5729**	**33.5729**	**1.1600e-003**	**2.0800e-003**	**34.2244**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5100e-003	0.0437	0.0616	9.0000e-005		2.1600e-003	2.1600e-003		1.9900e-003	1.9900e-003	0.0000	8.2407	8.2407	2.6100e-003	0.0000	8.3060
Paving	8.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3600e-003**	**0.0437**	**0.0616**	**9.0000e-005**		**2.1600e-003**	**2.1600e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**8.2407**	**8.2407**	**2.6100e-003**	**0.0000**	**8.3060**

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	2.6000e-004	1.8000e-004	2.6500e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0000e-003	2.7000e-004	0.0000	2.7000e-004	0.0000	0.7691	0.7691	2.0000e-005	2.0000e-005	0.7750
Total	**2.6000e-004**	**1.8000e-004**	**2.6500e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0000e-003**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**0.7691**	**0.7691**	**2.0000e-005**	**2.0000e-005**	**0.7750**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5100e-003	0.0437	0.0616	9.0000e-005		2.1600e-003	2.1600e-003		1.9900e-003	1.9900e-003	0.0000	8.2407	8.2407	2.6100e-003	0.0000	8.3060
Paving	8.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3600e-003**	**0.0437**	**0.0616**	**9.0000e-005**		**2.1600e-003**	**2.1600e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**8.2407**	**8.2407**	**2.6100e-003**	**0.0000**	**8.3060**

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	2.6000e-004	1.8000e-004	2.6500e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0000e-003	2.7000e-004	0.0000	2.7000e-004	0.0000	0.7691	0.7691	2.0000e-005	2.0000e-005	0.7750
Total	**2.6000e-004**	**1.8000e-004**	**2.6500e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0000e-003**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**0.7691**	**0.7691**	**2.0000e-005**	**2.0000e-005**	**0.7750**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2073					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	**0.2086**	**9.1200e-003**	**0.0127**	**2.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.1000e-004**	**0.0000**	**1.7900**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.4300e-003	0.0000	5.4000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4141	0.4141	1.0000e-005	1.0000e-005	0.4173
Total	**1.4000e-004**	**1.0000e-004**	**1.4300e-003**	**0.0000**	**5.4000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4141**	**0.4141**	**1.0000e-005**	**1.0000e-005**	**0.4173**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2073					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	9.1200e-003	0.0127	2.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	1.7873	1.7873	1.1000e-004	0.0000	1.7900
Total	**0.2086**	**9.1200e-003**	**0.0127**	**2.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.1000e-004**	**0.0000**	**1.7900**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.4300e-003	0.0000	5.4000e-004	0.0000	5.4000e-004	1.4000e-004	0.0000	1.5000e-004	0.0000	0.4141	0.4141	1.0000e-005	1.0000e-005	0.4173
Total	**1.4000e-004**	**1.0000e-004**	**1.4300e-003**	**0.0000**	**5.4000e-004**	**0.0000**	**5.4000e-004**	**1.4000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4141**	**0.4141**	**1.0000e-005**	**1.0000e-005**	**0.4173**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive 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	0.0847	0.0891	0.8116	1.8000e-003	0.1983	1.2600e-003	0.1996	0.0529	1.1800e-003	0.0541	0.0000	169.4587	169.4587	0.0110	7.3800e-003	171.9330
Unmitigated	0.0970	0.1104	1.0074	2.3500e-003	0.2602	1.6200e-003	0.2618	0.0695	1.5000e-003	0.0710	0.0000	220.9632	220.9632	0.0132	9.1100e-003	224.0086

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	184.96	276.76	213.52	690,792	526,390
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	184.96	276.76	213.52	690,792	526,390

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869
Other Asphalt Surfaces	0.546200	0.059546	0.185910	0.127866	0.024295	0.006605	0.014499	0.004906	0.000657	0.000381	0.024552	0.000713	0.003869

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	41.2682	41.2682	7.8000e-004	1.6000e-004	41.3354
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	115.0125	115.0125	2.1600e-003	4.5000e-004	115.1998
NaturalGas Mitigated	3.0300e-003	0.0259	0.0110	1.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	29.9470	29.9470	5.7000e-004	5.5000e-004	30.1249
NaturalGas Unmitigated	3.0300e-003	0.0259	0.0110	1.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	29.9470	29.9470	5.7000e-004	5.5000e-004	30.1249

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Condo/Townhouse	561185	3.0300e-003	0.0259	0.0110	1.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	29.9470	29.9470	5.7000e-004	5.5000e-004	30.1249
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.0300e-003**	**0.0259**	**0.0110**	**1.7000e-004**		**2.0900e-003**	**2.0900e-003**		**2.0900e-003**	**2.0900e-003**	**0.0000**	**29.9470**	**29.9470**	**5.7000e-004**	**5.5000e-004**	**30.1249**

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					
Condo/Townhouse	561185	3.0300e-003	0.0259	0.0110	1.7000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	29.9470	29.9470	5.7000e-004	5.5000e-004	30.1249
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.0300e-003**	**0.0259**	**0.0110**	**1.7000e-004**		**2.0900e-003**	**2.0900e-003**		**2.0900e-003**	**2.0900e-003**	**0.0000**	**29.9470**	**29.9470**	**5.7000e-004**	**5.5000e-004**	**30.1249**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	164299	115.0125	2.1600e-003	4.5000e-004	115.1998
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**115.0125**	**2.1600e-003**	**4.5000e-004**	**115.1998**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	111626	78.1404	1.4700e-003	3.0000e-004	78.2676
Other Asphalt Surfaces	-52673	-36.8722	-0.0007	-0.0001	-36.9322
Total		**41.2682**	**7.8000e-004**	**1.6000e-004**	**41.3354**

6.0 Area Detail

West Broadway Townhomes - Orange County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2680	4.0400e-003	0.3505	2.0000e-005		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	0.5728	0.5728	5.5000e-004	0.0000	0.5865
Unmitigated	0.2680	4.0400e-003	0.3505	2.0000e-005		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	0.5728	0.5728	5.5000e-004	0.0000	0.5865

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2367					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0105	4.0400e-003	0.3505	2.0000e-005		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	0.5728	0.5728	5.5000e-004	0.0000	0.5865
Total	**0.2680**	**4.0400e-003**	**0.3505**	**2.0000e-005**		**1.9400e-003**	**1.9400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**0.5728**	**0.5728**	**5.5000e-004**	**0.0000**	**0.5865**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	0.0207					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2367					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0105	4.0400e-003	0.3505	2.0000e-005		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	0.5728	0.5728	5.5000e-004	0.0000	0.5865
Total	**0.2680**	**4.0400e-003**	**0.3505**	**2.0000e-005**		**1.9400e-003**	**1.9400e-003**		**1.9400e-003**	**1.9400e-003**	**0.0000**	**0.5728**	**0.5728**	**5.5000e-004**	**0.0000**	**0.5865**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.9145	0.0582	1.4700e-003	28.8074
Unmitigated	31.7560	0.0728	1.8300e-003	34.1190

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.21524 / 1.39656	31.7560	0.0728	1.8300e-003	34.1190
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**31.7560**	**0.0728**	**1.8300e-003**	**34.1190**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	1.77219 / 1.31137	26.9145	0.0582	1.4700e-003	28.8074
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**26.9145**	**0.0582**	**1.4700e-003**	**28.8074**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.5874	0.0938	0.0000	3.9327
Unmitigated	3.1748	0.1876	0.0000	7.8654

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	15.64	3.1748	0.1876	0.0000	7.8654
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**3.1748**	**0.1876**	**0.0000**	**7.8654**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	7.82	1.5874	0.0938	0.0000	3.9327
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.5874**	**0.0938**	**0.0000**	**3.9327**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

A.2 - Noise Report

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NOISE IMPACT ANALYSIS

WEST BROADWAY TOWNHOMES PROJECT

CITY OF ANAHEIM

Lead Agency:

City of Anaheim
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Project No. 21095

March 14, 2022

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Anaheim
cmu	concrete masonry unit
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed West Broadway Townhomes project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise and vibration impacts from the proposed project; and
- An analysis of long-term operations-related noise and vibration impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located in the City of Anaheim (City) at 1661 and 1673 West Broadway. The approximately 1.55-acre project site currently contains three office buildings that total 14,144 square feet and associated driveways and parking lots. The project site is bounded by multifamily residential uses to the north, commercial uses to the west and east and W Broadway and multifamily residential uses to the south. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are residents at the multifamily homes located as near as 50 feet north of the project site. There are also multifamily homes located as near as 110 feet south of the project site, and a church located as near as 20 feet east of the project site. The nearest school is Loara Elementary School, which is located as near as 135 feet east of the project site.

1.3 Proposed Project Description

The proposed project would consist of demolition of the existing office buildings and associated driveways and parking lots and construction of five three-story residential buildings that would contain a total of 34 townhomes, onsite roadways, parking spaces, walkways, common space, and landscaping. The proposed project would have 100 onsite parking spaces, consisting of 32 open parking spaces and 68 garage spaces. The proposed site plan is shown in Figure 2 and the proposed Wall and Fence Plan is shown in Figure 3.

1.4 Executive Summary

Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City and State of California (State).

City of Anaheim Municipal Code

The following lists the City of Anaheim Municipal Code regulations that are applicable to all development projects in the City.

Section 6.70.010 Sound Pressure Levels

Section 6.70.010 of the City's Municipal Code restricts noise levels to 60 dBA at any point on the property line. Section 6.70.010 exempts construction noise that occurs between 7:00 a.m. and 7:00 p.m. from the 60 dBA stationary noise standard. Compliance with this regulation will reduce the construction-related and operational-related noise impacts to the nearby sensitive receptors.

Section 18.40.090 Sound Attenuation for Residential Developments

Section 18.40.090 of the Municipal Code requires that residential developments that are constructed within 600 feet of any railroad, freeway or arterial roadway be analyzed to determine if the noise levels would exceed 65 dBA CNEL within common recreation areas or 45 dBA CNEL at the interior of the proposed residential apartments. Compliance with this regulation will reduce operational noise impacts to the future residents of the proposed residential apartments.

State of California Rules

The following lists the State of California rules that are applicable to all industrial projects in the State.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Potentially significant impact. Implementation of Mitigation Measure 1 would reduce the impact to less than significant levels.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than significant impact.

1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features that are either already depicted on the proposed project architectural plans and/or are required from City and State Regulations.

Project Design Feature 1:
The project applicant shall provide a "windows closed" condition for each proposed townhome. A "window closed" condition requires a means of mechanical ventilation per Chapter 12, Section 1202 of the Uniform Building Code. This shall be achieved with a standard forced air conditioning and heating system with a filtered outside air intake vent for each townhome.

1.6 Mitigation Measures for the Proposed Project

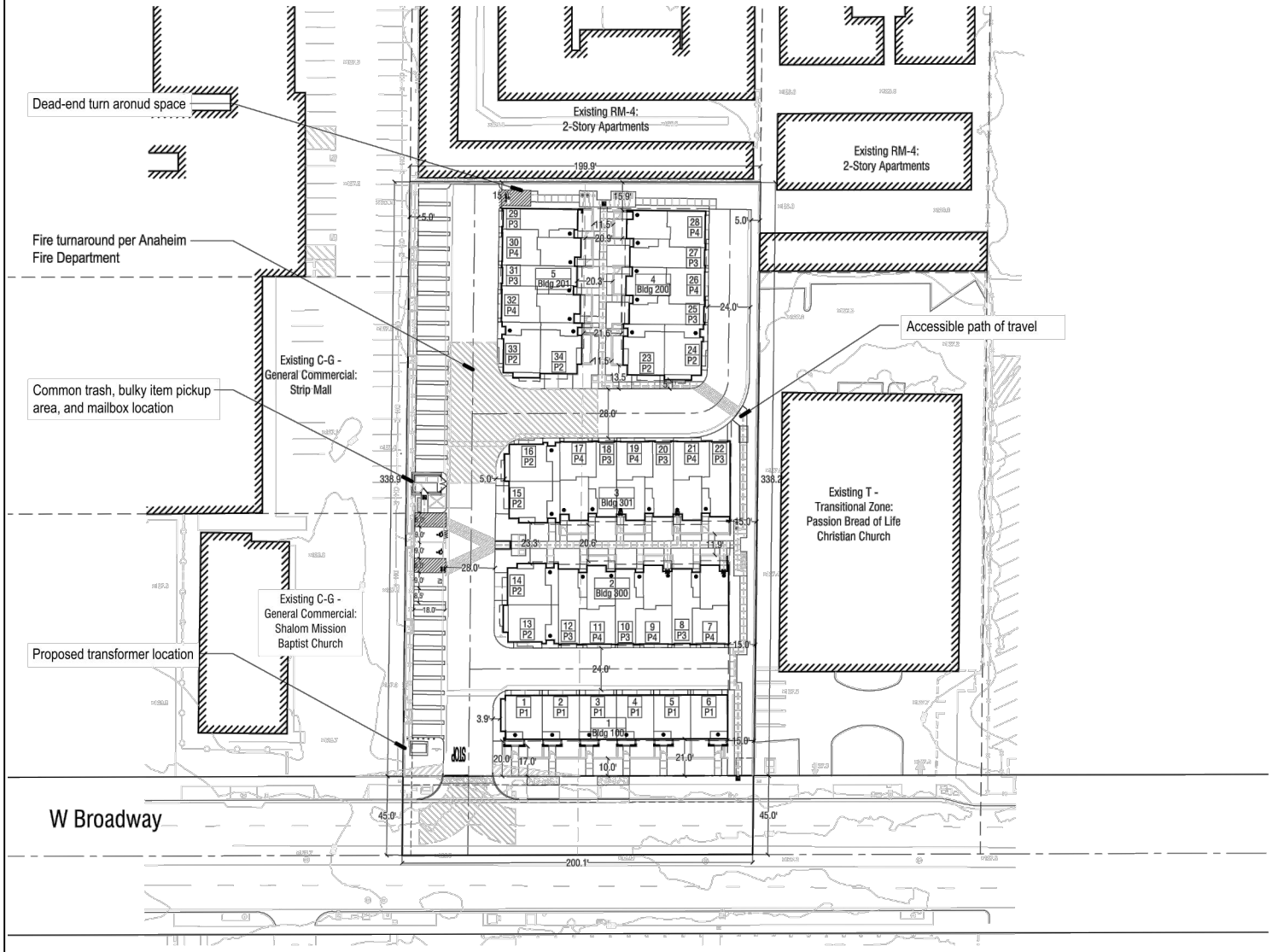
This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 and through implementation of Project Design Feature 1 detailed in Section 1.5 above and through implementation of the following mitigation, all noise and vibration impacts would be reduced to less than significant levels.

Mitigation Measure 1:
The project applicant shall require the 3-foot high fence that is located on the south side of the Building 1 patios as depicted on the Wall and Fence Plan (see Figure 3) to be constructed of a solid material that has a minimum Sound Transmission Class (STC) rating of 15 STC or higher.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Location Map



Project Summary

Total Site Area: ± 1.55 Acres (± 67,693 SF)

Total Units: 34 Homes
- (6) Plan 1: ± 1,062 SF, 2 Bedroom, 2.5 Bath
- (4) Plan 2a: ± 1,342 SF, 2 Bedroom, 2.5 Bath, Loft
- (4) Plan 2b: ± 1,342 SF, 3 Bedroom, 2.5 Bath
- (10) Plan 3: ± 1,317 SF, 3 Bedroom, 3 Bath
- (10) Plan 4: ± 1,633 SF, 4 Bedroom, 4 Bath, Opt. Den

Density: 21.93 Homes per Acre

Parking:

Required: 100 Spaces (2.94 spaces per home)
- (10) 2 Bedroom x 2.25 Spaces = 22.5 Spaces
- (14) 3 Bedroom x 3.0 Spaces = 42 Spaces
- (10) 4 Bedroom x 3.5 Spaces = 35 Spaces

Provided: 100 Spaces (2.94 spaces per home)
- Garage: 68 Spaces
- Head In: 30 Spaces (8.5' x 18'; includes 1 Future EV space)
- ADA: 2 Spaces (9' x 18')

Open Space:

Required: 9,350 SF Total (275 SF per home)
- Common: xx SF (10' min. dim.)
- Private: xx SF (10' min. dim. ground, 7' min. dim deck)

Provided: 9,525 SF Total (± 280 per home)
- Common: 7,544 SF (10' Min. Dimension)
- Private: 1,981 SF
  - Ground: 1,281 SF (10' Min. Dimension)
  - Deck: 700 SF (7' Min. Dimension)

Lot Coverage: 23,084 SF (34.1% of site)

Zoning Summary

Existing General Plan: Office - Low
Proposed General Plan: Mid Density

Existing Zoning: C-G - General Commercial
Proposed Zoning: RM-3.5 - Multiple-Family Residential

Max. Density: 27 Homes per Acre

Building Setbacks: Front Yard: 20'
Interior Side Yard: 15'
Street Side Yard: 15'
Rear Yard: 15'

Building Separation: Varies

Max. Building Height: 40' and 3 Stories

Max. Lot Coverage: 50%

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

SOURCE: William Hezmalhalch Architects, Inc.

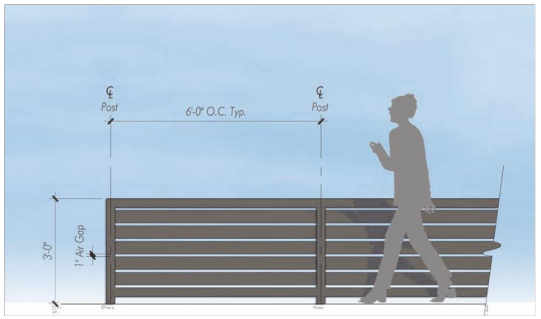
VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

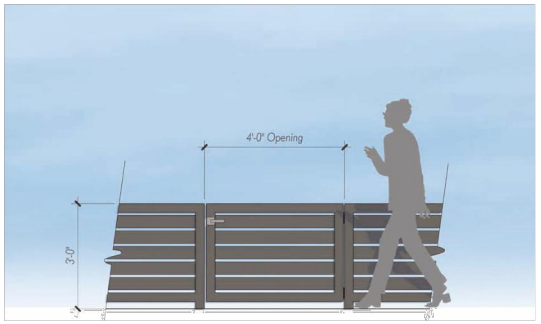
LEGEND

Patio Fence, 36" ht.

Pedestrian Gate, match height of adjacent wall/fence



METAL PATIO FENCE
Color: Per Colorist



METAL PATIO GATE
Color: Per Colorist

SOURCE: C2 Collaborative Landscape Architecture.

VISTA ENVIRONMENTAL

Figure 3
Proposed Wall and Fence Plan

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The worst-hour traffic Leq is the noise metric used by California Department of Transportation (Caltrans) for analyzing traffic noise impacts.

The Day-Night Average Level (Ldn or DNL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason, the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Anaheim relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in level of noise as the distance from the source increases. The manner in which the noise level reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features.

Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD) between source and receiver. Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is "VdB", which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform medium, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Anaheim. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA), which regulates transit noise, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the FTA is the only agency that has defined what constitutes a significant noise impact from implementing a project. The FTA recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances usually relates to nuisance and hours of allowed activity and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the noise impacts of a construction project. Project construction noise criteria should take into account the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land uses. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a detailed construction noise assessment are provided below in Table A.

Table A – FTA Construction Noise Criteria

Land Use	Day (dBA $Leq_{(8\text{-hour})}$)	Night (dBA $Leq_{(8\text{-hour})}$)	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80[(1)]
Industrial	90	90	85[(1)]

Notes:
[(1)] Use a 24-hour $Leq_{(24\ hour)}$ instead of $Ldn_{(30\ day)}$.
Source: Federal Transit Administration, 2018.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

The *Transportation- and Construction Vibration Guidance Manual*, prepared by Caltrans, April 2020, provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations – City of Anaheim

The City of Anaheim General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

City of Anaheim General Plan

The following applicable goals and policies to the proposed project are from the Noise Element of the General Plan.

Goal 1.1: Protect sensitive land uses from excessive noise through diligent planning and regulation.

Policies

2) Continue to enforce acceptable noise standards consistent with health and quality of life goals and employ effective techniques of noise abatement through such means as a noise ordinance, building codes, and subdivision and zoning regulations.

3) Consider the compatibility of proposed land uses with the noise environment when preparing, revising or reviewing development proposals.

4) Require mitigation where sensitive uses are to be placed along transportation routes to ensure that noise levels are minimized through appropriate means of mitigation thereby maintaining quality of life standards.

5) Encourage proper site planning and architecture to reduce noise impacts.

6) Discourage the siting of sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation.

7) Require that site-specific noise studies be conducted by a qualified acoustic consultant utilizing acceptable methodologies while reviewing the development of sensitive land uses or development that has the potential to impact sensitive land uses.

Goal 2.1: Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.

Policies

3) Require that development generating increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures.

5) Require sound walls, berms and landscaping along existing and future freeways and railroad right-of-way to beautify the landscape and reduce noise, where appropriate.

11) Encourage the development of alternative transportation modes that minimize noise within residential areas.

Goal 3.1: Protect residents from the effects of "spill over" or nuisance noise emanating from the City's activity centers.

Policies

1) Discourage new projects located in commercial or entertainment areas from exceeding stationary-source noise standards at the property line of proximate residential or commercial uses, as appropriate.

3) Enforce standards to regulate noise from construction activities. Particular emphasis shall be placed on the restriction of the hours in which work other than emergency work may occur. Discourage construction on weekends or holidays except in the case of construction proximate to schools where these operations could disturb the classroom environment.

4) Require that construction equipment operate with mufflers and intake silencers no less effective than originally equipped.

5) Encourage the use of portable noise barriers for heavy equipment operations performed within 100 feet of existing residences or make applicant provide evidence as to why the use of such barriers is infeasible.

City of Anaheim Municipal Code

The City of Anaheim Municipal Code establishes the following applicable standards related to noise.

6.70.010 Established.

Sound produced in excess of the sound pressure levels permitted herein is hereby determined to be objectionable and constitute an infringement upon the right and quiet enjoyment of property in this City.

No person shall within the City create any sound radiated for extended periods from any premises which produces a sound pressure level at any point on the property line in excess of **sixty decibels (**Re 0.0002 Microbar) read on the A-scale of a sound level meter. Readings shall be taken in accordance with the instrument manufacturer's instructions, using the slowest meter response.

The sound level measuring microphone shall be placed at any point on the property line, but not closer than three (3) feet from any wall and not less than three (3) feet above the ground, where the above listed maximum sound pressure level shall apply. At any point the measured level shall be the average of not less than three (3) readings taken at two (2) minute intervals. To have valid readings, the levels must be five (5) decibels or more above the levels prevailing at the same point when the source's of the alleged objectionable sound are not operating.

Sound pressure levels shall be measured with a sound level meter manufactured according to American Standard S1.4-1961 published by the American Standards Association, Inc., New York City, New York.

Traffic sound created by emergency activities and sound created by governmental units or their contractors shall be exempt from the applications of this chapter. Sound created by construction or building repair of any premises within the City shall be exempt from the applications of this chapter during the hours of 7:00 a.m. to 7:00 p.m. Additional work hours may be permitted if deemed necessary by the Director of Public Works or Building Official.

18.40.090 Sound Attenuation for Residential Developments.

.010 Applicability. Residential developments involving the construction of two (2) or more dwelling units, or residential subdivisions resulting in two (2) or more parcels, and located within six hundred (600) feet of any railroad, freeway, expressway, major arterial, primary arterial or secondary arterial, as designated by the Circulation Element of the General Plan, shall comply with the provisions of this section. The construction of an accessory dwelling unit such as a second unit or senior second unit as prescribed in Section 18.38.230 shall not constitute a residential development subject to the provisions of this section.

.020 Study Required. A noise level analysis shall be performed for any new residential development or subdivision to determine the projected interior and exterior noise levels within the development. The study shall include mitigation measures that would be required to comply with applicable City noise standards, as identified in this section. The study shall be provided by the applicant, at its sole expense, to the City at the time of application for development of the residential development or subdivision.

.030 Attenuation. Mitigation measures, without limitation, may include masonry walls, an earthen berm or a combination thereof. Masonry walls must comply with the requirements of Chapter 18.46 (Landscaping and Screening). The height of any proposed walls may not exceed the maximum height limitations of the underlying zone, unless a variance is granted by the approval authority, or City Council on appeal, in accordance with the procedures established in Chapter 18.60 (Common Procedures) for the processing of variances.

.040 Single-Family Detached. Exterior noise within the private rear yard of any single family lot and/or within any common recreation areas, shall be attenuated to a maximum of sixty-five (65) dB CNEL. Interior noise levels shall be attenuated to a maximum of forty-five (45) dB CNEL, or to a level designated by the Uniform Building Code, as adopted by the City.

.050 Single-Family Attached or Multiple Family. **Exterior noise within common recreation areas** of any single-family attached or multiple family dwelling project shall be attenuated to a maximum of **sixty-five (65) dB CNEL**. Interior noise levels shall be attenuated to a maximum of **forty-five (45) dB CNEL**, or to a level designated by the Uniform Building Code, as adopted by the City.

.060 Minor Deviations. Notwithstanding any provision of this Code to the contrary, the Planning Commission may grant a deviation from the requirements imposed by subsections .040 and .050 of this section pertaining to exterior noise levels in accordance with the procedures established in Chapter 18.60 (Common Procedures) for the processing of variances except that the findings set forth in Section 18.74.060 (Findings) of Chapter 18.74 (Variances) shall not be required and

provided that before any such deviation is granted by the Planning Commission, the evidence presented shows that all of the following conditions exist:

.0601 The deviation from prescribed levels does not pertain to interior noise levels;

.0602 The deviation does not exceed five (5) dB CNEL above the prescribed levels for exterior noise; and

.0603 Measures to attenuate noise to the prescribed levels would compromise or conflict with the aesthetic value of the project.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on West Broadway that is adjacent to the south side of the project site as well as from activities on the project site and nearby commercial uses. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in "slow" mode to record the sound pressure level at 3-second intervals for approximately 24 hours in "A" weighted form. In addition, the Leq averaged over the entire measuring time and Lmax were recorded. The sound level meters and microphones were mounted on trees approximately six feet above the ground and were equipped with a windscreen. The sound level meters were calibrated before and after the monitoring using an Extech calibrator, Model 407766. The noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-2014 standard).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise levels on the project site. Descriptions of the noise monitoring sites are provided below in Table B and are shown in Figure 4. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 9:40 a.m. on Monday, March 7, 2022 and 9:45 a.m. on Tuesday, March 8, 2022. When the noise measurements were started the sky was clear (no clouds), the temperature was 66 degrees Fahrenheit, the humidity was 24 percent, barometric pressure was 30.05 inches of mercury, and the wind was blowing around five miles per hour. Overnight, the temperature dropped to 42 degrees Fahrenheit and the humidity peaked at 79 percent. At the conclusion of the noise measurements, the sky was clear, the temperature was 68 degrees Fahrenheit, the humidity was 25 percent, barometric pressure was 29.98 inches of mercury, and the wind was blowing around two miles per hour.

5.2 Noise Measurement Results

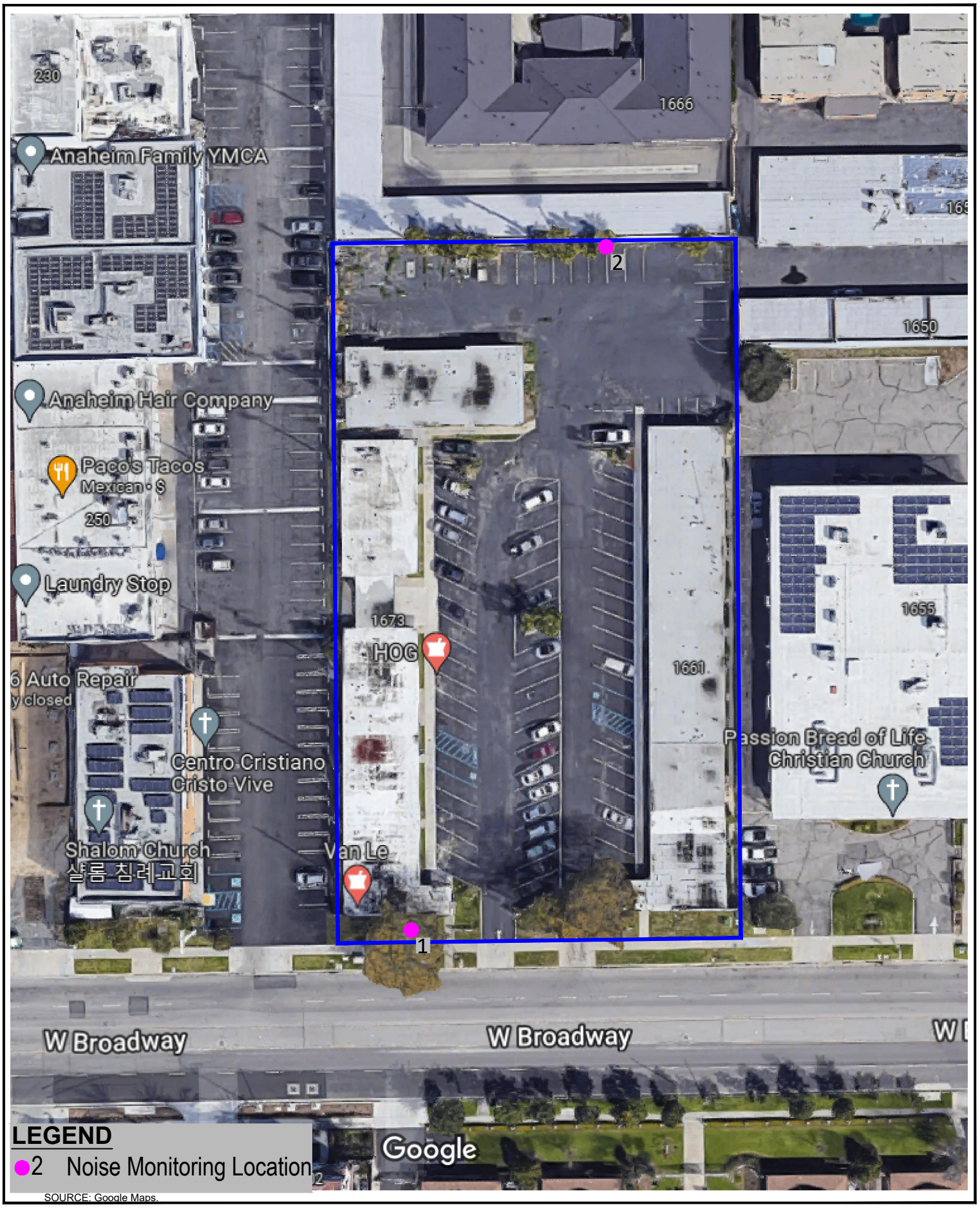
The results of the noise level measurements are presented in Table B. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table B also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The CNEL was calculated through use of Equation 2-23 from *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013. The noise monitoring data printouts are included in Appendix B. Figure 5 shows a graph of the 24-hour noise measurements.

Table B – Existing (Ambient) Noise Measurement Results

Site No.	Site Description	Average (dBA L_{eq})	Maximum (dBA L_{max})	(dBA $L_{eq\ 1\text{-}hour}$/Time) Minimum	(dBA $L_{eq\ 1\text{-}hour}$/Time) Maximum	Average (dBA CNEL)
1	Located on a tree near the southwest corner of the project site, approximately 50 feet north of West Broadway centerline.	68.5	92.8	60.3 1:11 a.m.	71.6 7:12 a.m.	73.9
2	Located on a palm tree on the north side of the project site, approximately 65 feet west of the northeast corner of the project site.	55.8	81.3	49.2 12:46 a.m.	60.2 6:42 a.m.	62.0

Source: Noise measurements were taken with two Extech Model 407780 Type 2 sound level meters from Monday, March 7, 2022 to Tuesday, March 8, 2022.

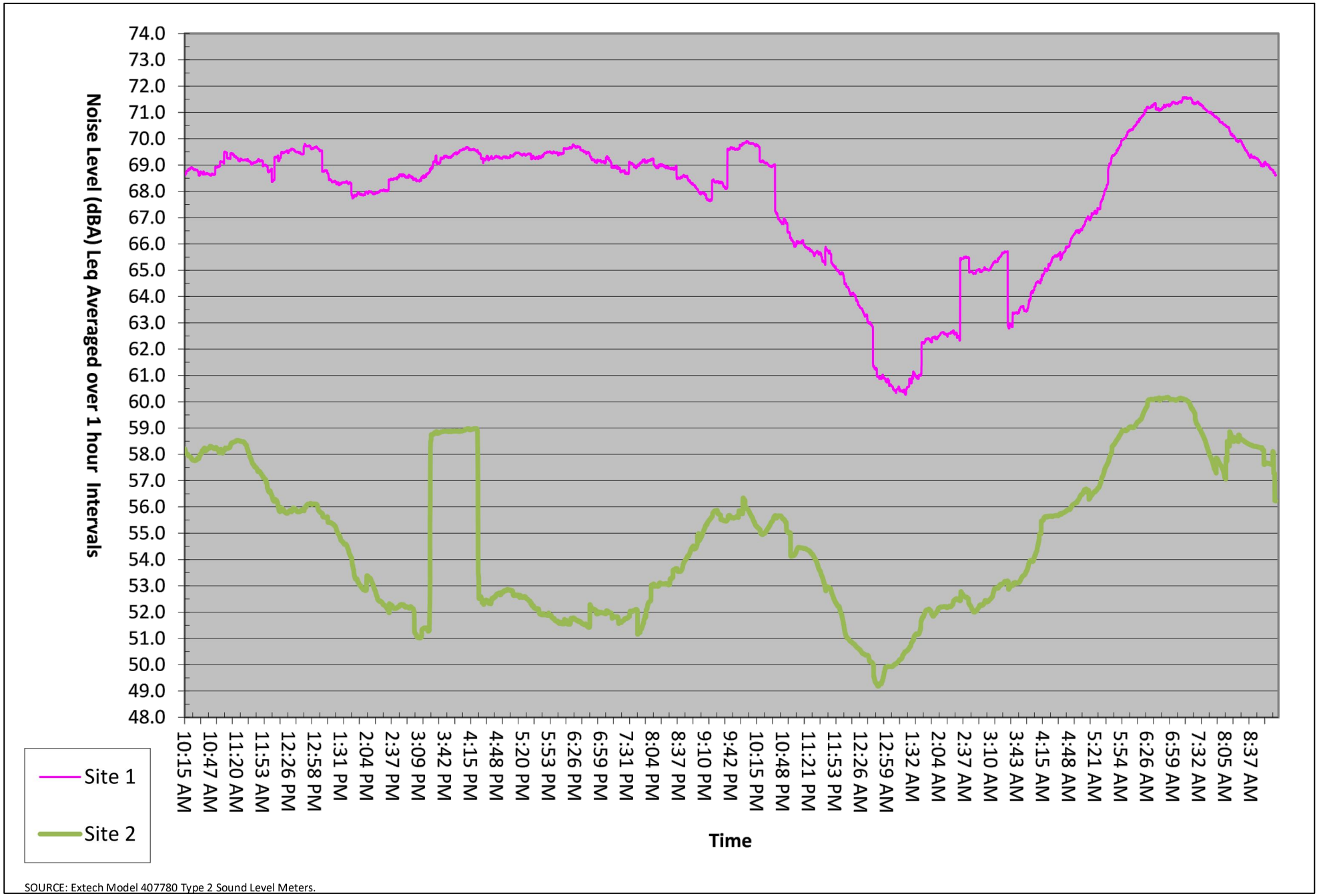
Table B shows that the measured noise level at Site 1 that is adjacent to West Broadway currently exceeds the City's 65 dB noise standard for multi-family common recreation areas as detailed in Section 18.40.090.050 of the Municipal Code and the measured noise level at Site 2 that is on the north side of the project site is currently within the City's 65 dB noise standard.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 4
Field Noise Monitoring Locations



SOURCE: Extech Model 407780 Type 2 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 5
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table C below provides a list of the construction equipment anticipated to be used for each phase of construction that was obtained from the *Air Quality, Energy, and Greenhouse Gas Impact Analysis West Broadway Townhomes Project* (Air Quality Analysis), prepared by Vista Environmental, March 4, 2022.

Table C – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Demolition				
Concrete/Industrial Saw	1	20	90	90
Rubber Tired Dozer	1	40	85	82
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Backhoe	1	40	80	78
Site Preparation				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	84
Tractor	1	40	84	N/A
Grading				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	1	40	85	83
Generator	1	50	82	81
Tractor	1	40	84	N/A
Welders	3	40	73	74
Paving				
Cement and Mortar Mixer	1	40	85	79
Paver	1	50	85	77
Paving Equipment	1	50	85	77
Rollers	1	20	85	80
Tractor	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.

[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
Source: Federal Highway Administration, 2006.

Table C shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed Table C and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual. The RCNM model printouts are provided in Appendix C.

6.2 Operations-Related Noise

FHWA Model Methodology

The proposed project would result in increases in traffic noise to the nearby roadways as well as introduce new sensitive receptors to the project site. The project impacts to the offsite roadways were analyzed through use of the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108 (FHWA Model). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for: the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT) and the percentage of ADT which flows during the day, evening and night, the travel speed, the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks and heavy trucks, the roadway grade, the angle of view of the observer exposed to the roadway and site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

FHWA Model Traffic Noise Prediction Model Inputs

The roadway parameters used for this study are presented in Table D. The roadway classifications are based on the City's General Plan Circulation Element. The roadway speeds are based on the posted speed limits. The distance to the nearest sensitive receptor was determined by measuring the distance from the roadway centerline to the nearest residence. Since the study area is located in a suburban environment and landscaping or natural vegetation exists along the sides of the nearby roads, soft site conditions were modeled.

Table D – FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor[1] (feet)
Euclid Street	South of West Broadway	Primary Arterial	35	70
West Broadway	West of Euclid Street	Secondary Arterial	40	55
West Broadway	East of Euclid Street	Secondary Arterial	35	60
West Broadway	East of Project Driveway	Secondary Arterial	35	60

Notes:
[1] Distance measured from nearest offsite residential structure to centerline of roadway.
Source: City of Anaheim, 2004; Vista Environmental.

The average daily traffic (ADT) volumes were obtained from the *1661 W Broadway Traffic Impact Analysis* (Traffic Analysis), prepared by TJW Engineering, Inc., October 19, 2021. Since the Traffic Analysis only provided the ADT volumes for West Broadway east of Euclid Street, the existing PM peak hour intersection volume for West Broadway was compared to the existing ADT volume, which found that the ADT volume is 11.45 times higher than the PM peak hour volume for this road segment. As such, the other roadway ADT volumes were calculated by multiplying the PM peak hour intersection volumes by 11.45 and are shown in Table E.

Table E – Average Daily Traffic Volumes

		Average Daily Traffic Volumes					
Roadway	Segment	Existing (Year 2021)	Existing + Project	Opening Year No Project	Opening Year + Project	General Plan Buildout	General Plan Buildout + Project
Euclid Street	South of W Broadway	29,230	29,258	29,830	29,858	39,980	40,008
West Broadway	West of Euclid Street	17,630	17,658	18,000	18,028	19,080	19,108
West Broadway	East of Euclid Street	16,914	17,034	17,252	17,372	18,700	18,820
West Broadway	East of Project Driveway	16,914	16,979	17,252	17,317	18,700	18,765

Source: TJW Engineering, Inc., 2021.

The vehicle mix used in the FHWA-RD-77-108 Model is shown in Table F and is based on typical vehicle mixes observed in Southern California for similar arterial roadways. The vehicle mix provides the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA model.

Table F – Roadway Vehicle Mix

	Traffic Flow Distributions			
Vehicle Type	Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	Overall
Automobiles	69.50%	12.90%	9.60%	92.00%
Medium Trucks	1.44%	0.06%	1.50%	3.00%
Heavy Trucks	2.40%	0.10%	2.50%	5.00%

Source: Vista Environmental.

FHWA Model Source Assumptions

To assess the roadway noise generation in a uniform manner, all vehicles are analyzed at the single lane equivalent acoustic center of the roadway being analyzed. In order to determine the height above the road grade where the noise is being emitted from, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above

road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

6.3 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to damage at the highest levels. Table G gives approximate vibration levels for particular construction activities. The data in Table G provides a reasonable estimate for a wide range of soil conditions.

Table G – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table G and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table C.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include demolition of the three existing office buildings and associated driveways and parking lots on the project site, site preparation and grading of the 1.55-acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are residents at the multifamily homes located as near as 50 feet north of the project site. There are also multifamily homes located as near as 110 feet south of the project site, and a church located as near as 20 feet east of the project site.

Section 6.70.010 of the City's Municipal Code exempts construction noise that occurs between 7:00 a.m. and 7:00 p.m. from the stationary noise standard of 60 dB at the nearby residential property lines. All construction activities associated with the proposed project would occur during the allowable hours for construction activities as detailed in Section 6.70.010 of the Municipal Code. However, the City construction noise standards do not provide any limits to the noise levels that may be created from construction activities and even with adherence to the City standards, the resultant construction noise levels may result in a significant substantial temporary noise increase to the nearby residents.

In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the FTA construction noise criteria thresholds detailed above in Section 4.1 have been utilized, which shows that a significant construction noise impact would occur if construction noise exceeds 80 dBA Leq over an eight hour period during the daytime at the nearby homes or exceeds

85 dBA Leq over an eight hour period during the daytime at the church to the east, which is considered a commercial use. Construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table H and the RCNM printouts are provided in Appendix C.

Table H – Construction Noise Levels at the Nearby Homes

	Construction Noise Levels (dBA Leq) at:		
Construction Phase	**Multifamily Homes to the North[1]**	**Multifamily Homes to the South[2]**	**Church to the East[3]**
Demolition	73	71	78
Site Preparation	72	70	77
Grading	72	70	77
Building Construction	72	70	77
Paving	70	68	76
Painting	61	59	66
FTA Construction Noise Thresholds[4]	**80**	**80**	**85**
Exceed Threshold?	No	No	No

Notes:
[1] The multifamily homes to the north are located as near as 220 feet from the center of the project site.
[2] The multifamily homes to the south are located as near as 280 feet from the center of the project site.
[3] The church to the east is located as near as 120 feet from the center of the project site.
[4] FTA Construction Noise Thresholds obtained from Table A above.
Source: RCNM, Federal Highway Administration, 2006

Table H shows that the greatest noise impacts would occur during the demolition phase, with a noise level as high as 73 dBA Leq at the multifamily homes to the north, 71 dBA Leq at the multifamily homes to the south, and 78 dBA Leq at the church to the east. The calculated construction noise levels shown in Table H are within the FTA daytime construction noise standard of 80 dBA at the nearby homes and within the 85 dBA noise standard at the church to the east. Therefore, through adherence to the allowable construction times detailed in Section 6.70.010 of the Municipal Code, the proposed project would not create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of a residential development with 34 townhomes. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways. In addition, the proposed development would be adjacent to West Broadway, which may create exterior and interior noise levels in excess of City standards at the proposed townhomes. The noise impacts to the nearby existing homes and proposed townhomes have been analyzed separately below.

Roadway Vehicular Noise Impact to Nearby Homes

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any

existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Policy 3 under Goal 2.I of the City's General Plan Noise Element, requires new development that generates increased traffic and subsequent increases in noise to noise-sensitive land uses to provide appropriate mitigation. However, since the General Plan does not define what increase in roadway noise would be considered significant, the noise increase thresholds detailed in the City's General Plan EIR has been utilized in this analysis. The General Plan EIR utilized a mobile-source noise threshold of: A 5 dBA increase threshold where the without project roadway noise levels are below 65 dBA CNEL at the nearest homes; or A 3 dBA increase threshold where the without project roadway noise levels are 65 dBA CNEL or higher.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and parameters described above in Section 6.2 and the FHWA model traffic noise calculation spreadsheets are provided in Appendix D. The proposed project's potential offsite traffic noise impacts have been analyzed for the existing year and opening year and General Plan Buildout scenarios that are discussed separately below.

Existing Year Conditions

The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the Existing scenario to the Existing With Project scenario. The results of this comparison are shown in Table I.

Table I – Existing Year Project Traffic Noise Contributions

		dBA CNEL at Nearest Receptor[1]			
Roadway	Segment	Existing	Existing Plus Project	Project Contribution	Increase Threshold[2]
Euclid Street	South of West Broadway	66.1	66.1	0.0	+3 dBA
West Broadway	West of Euclid Street	67.4	67.4	0.0	+3 dBA
West Broadway	East of Euclid Street	65.0	65.0	0.0	+3 dBA
West Broadway	East of Project Driveway	65.0	65.0	0.0	+3 dBA

Notes:
[1] Distance to nearest residential use shown in Table D, does not take into account existing noise barriers.
[2] Increase Threshold obtained from General Plan Goal 2.1, Policy 3 detailed above in Section 4.3.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table I shows that the proposed project's permanent roadway noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the allowable noise increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the existing conditions. Impacts would be less than significant.

Opening Year Conditions

The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the opening year scenario to the opening year with project scenario. The results of this comparison are shown in Table J.

Table J – Opening Year Project Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor[1]			Increase Threshold[2]
		Opening Year	Opening Year Plus Project	Project Contribution	
Euclid Street	South of West Broadway	66.2	66.2	0.0	+3 dBA
West Broadway	West of Euclid Street	67.5	67.5	0.0	+3 dBA
West Broadway	East of Euclid Street	65.1	65.1	0.0	+3 dBA
West Broadway	East of Project Driveway	65.1	65.1	0.0	+3 dBA

Notes:
[1] Distance to nearest residential use shown in Table D, does not take into account existing noise barriers.
[2] Increase Threshold obtained from General Plan Goal 2.1, Policy 3 detailed above in Section 4.3.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table J shows that the proposed project's permanent roadway noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the opening year conditions. Impacts would be less than significant.

General Plan Buildout Conditions

The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the General Plan Buildout scenario to the General Plan Buildout with project scenario. The results of this comparison are shown in Table K.

Table K – General Plan Buildout Project Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor[1]			Increase Threshold[2]
		General Plan Buildout	General Plan Buildout Plus Project	Project Contribution	
Euclid Street	South of West Broadway	67.5	67.5	0.0	+3 dBA
West Broadway	West of Euclid Street	67.7	67.7	0.0	+3 dBA
West Broadway	East of Euclid Street	65.4	65.4	0.0	+3 dBA
West Broadway	East of Project Driveway	65.4	65.4	0.0	+3 dBA

Notes:
[1] Distance to nearest residential use shown in Table D, does not take into account existing noise barriers.
[2] Increase Threshold obtained from General Plan Goal 2.1, Policy 3 detailed above in Section 4.3.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table K shows that the proposed project's permanent roadway noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the General Plan Buildout conditions. Impacts would be less than significant.

Roadway Noise Impacts to the Proposed Townhomes

The proposed project would consist of a residential development with 34 townhomes. Goal 1.1 part 5 of the General Plan discourages the siting of new homes in areas in excess of 65 dBA CNEL without appropriate mitigation. Section 18.40.090.050 of the Municipal Code requires that exterior noise within

common recreation areas of multiple family dwelling projects be attenuated to a maximum of 65 dBA CNEL and requires the interior of new multiple family units to be attenuated to 45 dBA CNEL.

It is anticipated that the primary source of noise impacts to the project site will be traffic noise from West Broadway that is adjacent to the south side of the project site. The FHWA traffic noise prediction model parameters used in this analysis are discussed above in detail in Section 6.2 and the FHWA model printouts are provided in Appendix E. The exterior and interior noise impacts to the proposed townhomes have been analyzed separately below.

Exterior Noise Impacts

Table L shows the calculated roadway noise levels at the private patio areas of the proposed townhomes. It should be noted that this provides for a more conservative analysis than what is required from Section 18.40.090.050 that only requires the common recreation areas to meet the 65 dBA CNEL exterior noise standard. It should also be noted that the proposed Wall and Fence Plan that is shown above in Figure 3, depicts a 3 foot high metal patio fence located around the perimeter of the private patios, however the proposed metal patio fences would be constructed with horizontal metal slats with 1-inch air gaps between each slat. Due to the design of these metal fences, with air gaps, no noise attenuation would be provided by these fences.

Table L – Proposed Townhomes Private Patio Areas Unmitigated Roadway Noise Levels

Building 1 Unit Number	Roadway	Exterior Noise Levels at Private Patio Areas (dBA CNEL)	Exceed City's 65 dBA CNEL Exterior Noise Standard?
1	West Broadway	65.4	**Yes**
4	West Broadway	65.4	**Yes**
6	West Broadway	65.4	**Yes**

Source: FHWA RD-77-108 Model.

Table L shows that the exterior noise levels at the private patio areas for Building 1 that are adjacent to West Broadway would exceed the City's 65 dBA CNEL exterior noise standard. This would be considered a significant impact.

Mitigation Measure 1 is provided that would require the 3-foot high fence that is located on the south side of the Building 1 patios as depicted on the Wall Plan (see Figure 3, above) to be constructed of a solid material that has a minimum 15 STC rating or higher. The roadway noise levels were recalculated at the private patio areas of the proposed townhomes with implementation of Mitigation Measure 1 and the results are shown in Table M.

Table M – Proposed Townhomes Private Patio Areas Mitigated Roadway Noise Levels

Building 1 Unit Number	Roadway	Exterior Noise Levels at Private Patio Areas[1] (dBA CNEL)	Exceed City's 65 dBA CNEL Exterior Noise Standard?
1	West Broadway	63.4	No
4	West Broadway	64.8	No
6	West Broadway	64.8	No

Notes:
[1] Calculated noise levels account for solid patio wall as depicted in Mitigation Measure 1.
Source: FHWA RD-77-108 Model.

Table M shows that with application of Mitigation Measure 1, the roadway noise levels at the private patio areas would be reduced to within the City's 65 dBA CNEL exterior noise standard. Exterior noise impacts to the proposed townhomes would be less than significant with implementation of Mitigation Measure 1.

Interior Noise Impacts

For the interior noise levels of the proposed townhomes, Table N-3 of the General Plan details that the interior noise level for homes with closed windows and mechanical ventilation would provide a minimum of 20 dBA exterior to interior noise level reduction. Project Design Feature 1 has been included in this analysis to ensure that each townhome has a forced air mechanical ventilation system so that windows may be kept in the closed position. The anticipated noise levels have been calculated at the, first, second, and third floor facades and interior of the nearest proposed townhomes to West Broadway and the results are shown below in Table N.

Table N – Proposed Townhomes Interior Noise Levels from Roadway Noise

Building 1 Unit Number	Floor	Road Noise Level at facade of Townhomes (dBA CNEL)	Townhomes Interior Noise Level[1] (dBA CNEL)	Exceed City's 45 dBA CNEL Interior Noise Standard?
1	First	61.6	41.6	No
	Second	64.5	44.5	No
	Third	64.2	44.2	No
4	First	63.3	43.3	No
	Second	64.5	44.5	No
	Third	64.2	44.2	No
6	First	63.6	53.6	No
	Second	64.5	44.5	No
	Third	64.2	44.2	No

Notes:
[1] Interior noise level based on a 20 dB exterior to interior noise reduction rate (City of Anaheim, 2004)
Source: FHWA RD-77-108 Model (see Appendix E).

Table N shows that the interior noise levels at the proposed townhomes that are adjacent to West Broadway would be within the Section 18.40.090.050 of the Municipal Code interior noise standard of 45 dBA CNEL. Therefore, the roadway noise impacts at the interior of the proposed townhomes would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1:

The project applicant shall require the 3-foot high fence that is located on the south side of the Building 1 patios as depicted on the Wall and Fence Plan (see Figure 3) to be constructed of a solid material that has a minimum Sound Transmission Class (STC) rating of 15 STC or higher.

Level of Significance After Mitigation

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include demolition of the three existing office buildings and associated driveways and parking lots on the project site, site preparation and grading of the 1.55-acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors to the project site are residents at the multifamily homes located as near as 50 feet north of the project site. There are also multifamily homes located as near as 110 feet south of the project site, and a church located as near as 20 feet east of the project site.

Since neither the City's General Plan nor the Municipal Code provide a quantifiable vibration threshold for construction equipment, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table G above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite structure that may contain sensitive receptors (church 20 feet to the east) would be 0.11 inch per second PPV. The vibration level at the nearest offsite structure with sensitive receptors would be below the 0.25 inch per second PPV threshold detailed above. Therefore, a less than significant vibration impact is anticipated from construction of the proposed project.

Operations-Related Vibration Impacts

The proposed project would consist of the development of a residential community. The on-going operation of the proposed project would not include the operation of any known vibration sources other than typical onsite vehicle operations for a residential development. Therefore, a less than significant vibration impact is anticipated from operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project may expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Fullerton Municipal Airport that is located as near as 3.5 miles northwest of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport. Therefore, the proposed townhomes would not be exposed to excessive aircraft noise. Impacts would be less than significant.

Level of Significance

Less than significant impact.

8.0 REFERENCES

California Department of Transportation, *2016 Annual Average Daily Truck Traffic on the California State Highway System*, 2018.

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation- and Construction Vibration Guidance Manual*, April 2020.

City of Anaheim, *City of Anaheim General Plan*, May 2004.

City of Anaheim, *City of Anaheim General Plan/Zoning Code Update*, June 12, 2018.

City of Anaheim, *City of Anaheim Municipal Code*, February 2018.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006.

TJW Engineering, Inc. *1661 W Broadway Traffic Impact Analysis,* October 19, 2021.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

U.S. Department of Transportation, *Highway Traffic Noise: Analysis and Abatement Guidance,* December, 2011.

Vista Environmental, *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis West Broadway Townhomes Project*, March 4, 2022.

APPENDIX A

Field Noise Measurements Photo Index

Noise Measurement Site 1 - looking north

Noise Measurement Site 1 - looking northeast

Noise Measurement Site 1 - looking east

Noise Measurement Site 1 - looking southeast

Noise Measurement Site 1 - looking south

Noise Measurement Site 1 - looking southwest

Noise Measurement Site 1 - looking west

Noise Measurement Site 1 - looking northwest

Noise Measurement Site 2 - looking north

Noise Measurement Site 2 - looking northeast

Noise Measurement Site 2 - looking east

Noise Measurement Site 2 - looking southeast

Noise Measurement Site 2 - looking south

Noise Measurement Site 2 - looking southwest

Noise Measurement Site 2 - looking west

Noise Measurement Site 2 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - Near Southwest Corner of Project Site

Date	Time=03/07/22	9:40:00 AM			
Sampling	Time=3	Weighting=A			
Record	Num=	29000	Weighting=Slow	CNEL(24hr)=	73.9
Leq	68.4	SEL	Value=118.7	Ldn(24hr)=	73.6
MAX	92.8		Min Leq1hr =	60.3	1:11 AM
MIN	49.1		Max Leq1hr =	71.6	7:12 AM

Site 1 - Near Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
58.0	9:40:00		58	58
59.0	9:40:03		59	59
66.4	9:40:06		66.4	66.4
67.1	9:40:09		67.1	67.1
62.1	9:40:12		62.1	62.1
61.1	9:40:15		61.1	61.1
65.7	9:40:18		65.7	65.7
62.3	9:40:21		62.3	62.3
56.9	9:40:24		56.9	56.9
65.7	9:40:27		65.7	65.7
72.4	9:40:30		72.4	72.4
61.9	9:40:33		61.9	61.9
57.3	9:40:36		57.3	57.3
59.7	9:40:39		59.7	59.7
65.6	9:40:42		65.6	65.6
64.9	9:40:45		64.9	64.9
70.1	9:40:48		70.1	70.1
70.3	9:40:51		70.3	70.3
66.5	9:40:54		66.5	66.5
66.5	9:40:57		66.5	66.5
61.6	9:41:00		61.6	61.6
60.8	9:41:03		60.8	60.8
60.7	9:41:06		60.7	60.7
61.5	9:41:09		61.5	61.5
59.8	9:41:12		59.8	59.8
57.2	9:41:15		57.2	57.2
56.1	9:41:18		56.1	56.1
57.4	9:41:21		57.4	57.4
57.5	9:41:24		57.5	57.5
59.9	9:41:27		59.9	59.9
64.1	9:41:30		64.1	64.1
66.4	9:41:33		66.4	66.4
70.7	9:41:36		70.7	70.7
69.5	9:41:39		69.5	69.5
66.3	9:41:42		66.3	66.3
63	9:41:45		63	63
58.9	9:41:48		58.9	58.9
57.9	9:41:51		57.9	57.9
59.4	9:41:54		59.4	59.4
65.5	9:41:57		65.5	65.5
67.7	9:42:00		67.7	67.7
61.4	9:42:03		61.4	61.4
62.1	9:42:06		62.1	62.1
65.6	9:42:09		65.6	65.6
60.3	9:42:12		60.3	60.3
67.8	9:42:15		67.8	67.8
66.4	9:42:18		66.4	66.4
68.4	9:42:21		68.4	68.4
72.6	9:42:24		72.6	72.6
67.7	9:42:27		67.7	67.7
63.4	9:42:30		63.4	63.4
67.2	9:42:33		67.2	67.2
67.6	9:42:36		67.6	67.6
69.1	9:42:39		69.1	69.1
70.7	9:42:42		70.7	70.7
69.2	9:42:45		69.2	69.2
59.3	9:42:48		59.3	59.3
60	9:42:51		60	60
68.3	9:42:54		68.3	68.3
69.9	9:42:57		69.9	69.9
69.4	9:43:00		69.4	69.4
69.8	9:43:03		69.8	69.8
67.8	9:43:06		67.8	67.8
63.4	9:43:09		63.4	63.4
67.1	9:43:12		67.1	67.1
67.7	9:43:15		67.7	67.7
69.7	9:43:18		69.7	69.7
71.3	9:43:21		71.3	71.3
67.5	9:43:24		67.5	67.5
64.5	9:43:27		64.5	64.5
62.8	9:43:30		62.8	62.8
60.8	9:43:33		60.8	60.8
62.7	9:43:36		62.7	62.7
74.6	9:43:39		74.6	74.6
73	9:43:42		73	73

Site 2 - On North Side of Project Site

Date	Time=03/07/22	9:45:00 AM			
Sampling	Time=3	Freq Weighting=A			
Record	Num=	29000	Weighting=Slow	CNEL(24hr)=	62.0
Leq	55.8	SEL	Value=105.5	Ldn(24hr)=	61.8
MAX	81.3		Min Leq1hr =	49.2	12:46 AM
MIN	44.8		Max Leq1hr =	60.2	6:42 AM

Site 2 - On North Side of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
54.4	9:45:00		54.4	54.4
53.8	9:45:03		53.8	53.8
57.6	9:45:06		57.6	57.6
59.3	9:45:09		59.3	59.3
62.7	9:45:12		62.7	62.7
60.1	9:45:15		60.1	60.1
62	9:45:18		62	62
63.6	9:45:21		63.6	63.6
62.1	9:45:24		62.1	62.1
61.7	9:45:27		61.7	61.7
62.2	9:45:30		62.2	62.2
68	9:45:33		68	68
64.3	9:45:36		64.3	64.3
61.6	9:45:39		61.6	61.6
59.7	9:45:42		59.7	59.7
56	9:45:45		56	56
59.4	9:45:48		59.4	59.4
69.8	9:45:51		69.8	69.8
63.9	9:45:54		63.9	63.9
61.9	9:45:57		61.9	61.9
58.5	9:46:00		58.5	58.5
58.2	9:46:03		58.2	58.2
56.8	9:46:06		56.8	56.8
56.4	9:46:09		56.4	56.4
55.3	9:46:12		55.3	55.3
55.1	9:46:15		55.1	55.1
56	9:46:18		56	56
57.3	9:46:21		57.3	57.3
55	9:46:24		55	55
55	9:46:27		55	55
56.7	9:46:30		56.7	56.7
55.8	9:46:33		55.8	55.8
55	9:46:36		55	55
55.4	9:46:39		55.4	55.4
55	9:46:42		55	55
55.9	9:46:45		55.9	55.9
57.2	9:46:48		57.2	57.2
58.6	9:46:51		58.6	58.6
57.2	9:46:54		57.2	57.2
57	9:46:57		57	57
57.2	9:47:00		57.2	57.2
57.1	9:47:03		57.1	57.1
55.4	9:47:06		55.4	55.4
56.5	9:47:09		56.5	56.5
56.7	9:47:12		56.7	56.7
58.3	9:47:15		58.3	58.3
57.6	9:47:18		57.6	57.6
57.2	9:47:21		57.2	57.2
57.5	9:47:24		57.5	57.5
58.1	9:47:27		58.1	58.1
58.3	9:47:30		58.3	58.3
56.7	9:47:33		56.7	56.7
55.8	9:47:36		55.8	55.8
56.9	9:47:39		56.9	56.9
56.6	9:47:42		56.6	56.6
57.8	9:47:45		57.8	57.8
55.9	9:47:48		55.9	55.9
55	9:47:51		55	55
55.5	9:47:54		55.5	55.5
55.3	9:47:57		55.3	55.3
55.4	9:48:00		55.4	55.4
55.2	9:48:03		55.2	55.2
56.4	9:48:06		56.4	56.4
55.6	9:48:09		55.6	55.6
55.8	9:48:12		55.8	55.8
54.6	9:48:15		54.6	54.6
54.9	9:48:18		54.9	54.9
55.5	9:48:21		55.5	55.5
55.5	9:48:24		55.5	55.5
56.4	9:48:27		56.4	56.4
55.5	9:48:30		55.5	55.5
54.9	9:48:33		54.9	54.9
55.8	9:48:36		55.8	55.8
56.1	9:48:39		56.1	56.1
55.7	9:48:42		55.7	55.7

Site 1 - Near Southwest Corner of Project Site					Site 2 - On North Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
66.9	9:43:45		66.9	66.9	56.5	9:48:45		56.5	56.5
60.2	9:43:48		60.2	60.2	56.4	9:48:48		56.4	56.4
60.4	9:43:51		60.4	60.4	57.2	9:48:51		57.2	57.2
61.1	9:43:54		61.1	61.1	57	9:48:54		57	57
64.1	9:43:57		64.1	64.1	59.3	9:48:57		59.3	59.3
64.8	9:44:00		64.8	64.8	56.6	9:49:00		56.6	56.6
66.3	9:44:03		66.3	66.3	56.4	9:49:03		56.4	56.4
73.6	9:44:06		73.6	73.6	56.5	9:49:06		56.5	56.5
73.7	9:44:09		73.7	73.7	58.8	9:49:09		58.8	58.8
71	9:44:12		71	71	56.9	9:49:12		56.9	56.9
70.8	9:44:15		70.8	70.8	57	9:49:15		57	57
70.2	9:44:18		70.2	70.2	58	9:49:18		58	58
66.4	9:44:21		66.4	66.4	59.2	9:49:21		59.2	59.2
66.9	9:44:24		66.9	66.9	59.3	9:49:24		59.3	59.3
61.2	9:44:27		61.2	61.2	61.6	9:49:27		61.6	61.6
64.6	9:44:30		64.6	64.6	59.7	9:49:30		59.7	59.7
65.1	9:44:33		65.1	65.1	61	9:49:33		61	61
62.2	9:44:36		62.2	62.2	59.6	9:49:36		59.6	59.6
70.8	9:44:39		70.8	70.8	58	9:49:39		58	58
67.6	9:44:42		67.6	67.6	57	9:49:42		57	57
64.7	9:44:45		64.7	64.7	58.6	9:49:45		58.6	58.6
72.7	9:44:48		72.7	72.7	59	9:49:48		59	59
73.9	9:44:51		73.9	73.9	56.4	9:49:51		56.4	56.4
71.1	9:44:54		71.1	71.1	57.3	9:49:54		57.3	57.3
71.1	9:44:57		71.1	71.1	57.9	9:49:57		57.9	57.9
67.4	9:45:00		67.4	67.4	56.8	9:50:00		56.8	56.8
62	9:45:03		62	62	58.1	9:50:03		58.1	58.1
58.7	9:45:06		58.7	58.7	57.1	9:50:06		57.1	57.1
59.1	9:45:09		59.1	59.1	59.6	9:50:09		59.6	59.6
70.2	9:45:12		70.2	70.2	57.2	9:50:12		57.2	57.2
67.4	9:45:15		67.4	67.4	57.6	9:50:15		57.6	57.6
66.8	9:45:18		66.8	66.8	56.1	9:50:18		56.1	56.1
61.6	9:45:21		61.6	61.6	56.6	9:50:21		56.6	56.6
65.5	9:45:24		65.5	65.5	57.1	9:50:24		57.1	57.1
70	9:45:27		70	70	59	9:50:27		59	59
65	9:45:30		65	65	59.6	9:50:30		59.6	59.6
67.2	9:45:33		67.2	67.2	56.9	9:50:33		56.9	56.9
65.7	9:45:36		65.7	65.7	56.1	9:50:36		56.1	56.1
70.4	9:45:39		70.4	70.4	55.9	9:50:39		55.9	55.9
67.7	9:45:42		67.7	67.7	57.9	9:50:42		57.9	57.9
61.7	9:45:45		61.7	61.7	57.5	9:50:45		57.5	57.5
59.8	9:45:48		59.8	59.8	55.7	9:50:48		55.7	55.7
59.4	9:45:51		59.4	59.4	58.5	9:50:51		58.5	58.5
59.5	9:45:54		59.5	59.5	55.6	9:50:54		55.6	55.6
64.8	9:45:57		64.8	64.8	55.5	9:50:57		55.5	55.5
64.1	9:46:00		64.1	64.1	56.7	9:51:00		56.7	56.7
61.4	9:46:03		61.4	61.4	56.9	9:51:03		56.9	56.9
62.6	9:46:06		62.6	62.6	55.6	9:51:06		55.6	55.6
69.8	9:46:09		69.8	69.8	56.5	9:51:09		56.5	56.5
68.4	9:46:12		68.4	68.4	58	9:51:12		58	58
66.5	9:46:15		66.5	66.5	58.8	9:51:15		58.8	58.8
63.6	9:46:18		63.6	63.6	59	9:51:18		59	59
65.4	9:46:21		65.4	65.4	58.1	9:51:21		58.1	58.1
64.2	9:46:24		64.2	64.2	59	9:51:24		59	59
60	9:46:27		60	60	57.3	9:51:27		57.3	57.3
62.8	9:46:30		62.8	62.8	57.4	9:51:30		57.4	57.4
66.3	9:46:33		66.3	66.3	57.1	9:51:33		57.1	57.1
62.8	9:46:36		62.8	62.8	58.2	9:51:36		58.2	58.2
61	9:46:39		61	61	56.5	9:51:39		56.5	56.5
65.6	9:46:42		65.6	65.6	56.6	9:51:42		56.6	56.6
62.8	9:46:45		62.8	62.8	57.7	9:51:45		57.7	57.7
59.2	9:46:48		59.2	59.2	61.7	9:51:48		61.7	61.7
61.2	9:46:51		61.2	61.2	58.3	9:51:51		58.3	58.3
68.4	9:46:54		68.4	68.4	57.7	9:51:54		57.7	57.7
70.9	9:46:57		70.9	70.9	59.7	9:51:57		59.7	59.7
70.7	9:47:00		70.7	70.7	56.1	9:52:00		56.1	56.1
71.3	9:47:03		71.3	71.3	55.8	9:52:03		55.8	55.8
70	9:47:06		70	70	57.2	9:52:06		57.2	57.2
70.3	9:47:09		70.3	70.3	57.4	9:52:09		57.4	57.4
70.7	9:47:12		70.7	70.7	60	9:52:12		60	60
72.5	9:47:15		72.5	72.5	60.5	9:52:15		60.5	60.5
69.9	9:47:18		69.9	69.9	59.9	9:52:18		59.9	59.9
62.8	9:47:21		62.8	62.8	57.7	9:52:21		57.7	57.7
66.6	9:47:24		66.6	66.6	56.1	9:52:24		56.1	56.1
64	9:47:27		64	64	56.5	9:52:27		56.5	56.5
65.8	9:47:30		65.8	65.8	57.3	9:52:30		57.3	57.3
68.2	9:47:33		68.2	68.2	60.9	9:52:33		60.9	60.9
68	9:47:36		68	68	60.1	9:52:36		60.1	60.1
64.8	9:47:39		64.8	64.8	60.2	9:52:39		60.2	60.2
60.9	9:47:42		60.9	60.9	59.2	9:52:42		59.2	59.2
59.6	9:47:45		59.6	59.6	59	9:52:45		59	59
61.4	9:47:48		61.4	61.4	58.5	9:52:48		58.5	58.5
64.3	9:47:51		64.3	64.3	60.3	9:52:51		60.3	60.3
63.5	9:47:54		63.5	63.5	59.2	9:52:54		59.2	59.2
61	9:47:57		61	61	62.1	9:52:57		62.1	62.1
60.2	9:48:00		60.2	60.2	59.8	9:53:00		59.8	59.8

Site 1 - Near Southwest Corner of Project Site					Site 2 - On North Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
60.2	9:48:03		60.2	60.2	60.1	9:53:03		60.1	60.1
69.9	9:48:06		69.9	69.9	58.7	9:53:06		58.7	58.7
72.1	9:48:09		72.1	72.1	60	9:53:09		60	60
66.9	9:48:12		66.9	66.9	57.9	9:53:12		57.9	57.9
67.5	9:48:15		67.5	67.5	57.3	9:53:15		57.3	57.3
68	9:48:18		68	68	58	9:53:18		58	58
66.2	9:48:21		66.2	66.2	56.7	9:53:21		56.7	56.7
61	9:48:24		61	61	59.5	9:53:24		59.5	59.5
57.4	9:48:27		57.4	57.4	62.4	9:53:27		62.4	62.4
57.6	9:48:30		57.6	57.6	61.2	9:53:30		61.2	61.2
57.9	9:48:33		57.9	57.9	59.7	9:53:33		59.7	59.7
58.1	9:48:36		58.1	58.1	58.8	9:53:36		58.8	58.8
57.7	9:48:39		57.7	57.7	58.4	9:53:39		58.4	58.4
59.6	9:48:42		59.6	59.6	59.3	9:53:42		59.3	59.3
68	9:48:45		68	68	57.9	9:53:45		57.9	57.9
67.5	9:48:48		67.5	67.5	57.8	9:53:48		57.8	57.8
72.4	9:48:51		72.4	72.4	58.6	9:53:51		58.6	58.6
68.7	9:48:54		68.7	68.7	58.7	9:53:54		58.7	58.7
69	9:48:57		69	69	61.9	9:53:57		61.9	61.9
68.3	9:49:00		68.3	68.3	59.6	9:54:00		59.6	59.6
65.1	9:49:03		65.1	65.1	58.1	9:54:03		58.1	58.1
64.5	9:49:06		64.5	64.5	57.5	9:54:06		57.5	57.5
74	9:49:09		74	74	59.8	9:54:09		59.8	59.8
68.8	9:49:12		68.8	68.8	58.4	9:54:12		58.4	58.4
62.9	9:49:15		62.9	62.9	57.5	9:54:15		57.5	57.5
63.5	9:49:18		63.5	63.5	56.6	9:54:18		56.6	56.6
65.2	9:49:21		65.2	65.2	57.8	9:54:21		57.8	57.8
62.7	9:49:24		62.7	62.7	57.2	9:54:24		57.2	57.2
60.8	9:49:27		60.8	60.8	57.9	9:54:27		57.9	57.9
64.8	9:49:30		64.8	64.8	58.6	9:54:30		58.6	58.6
63	9:49:33		63	63	60.3	9:54:33		60.3	60.3
60.7	9:49:36		60.7	60.7	60.1	9:54:36		60.1	60.1
61.4	9:49:39		61.4	61.4	60	9:54:39		60	60
62	9:49:42		62	62	58.8	9:54:42		58.8	58.8
63	9:49:45		63	63	58.2	9:54:45		58.2	58.2
63.6	9:49:48		63.6	63.6	58	9:54:48		58	58
62.6	9:49:51		62.6	62.6	57.6	9:54:51		57.6	57.6
67.5	9:49:54		67.5	67.5	57.3	9:54:54		57.3	57.3
70.4	9:49:57		70.4	70.4	57.6	9:54:57		57.6	57.6
67.9	9:50:00		67.9	67.9	59.8	9:55:00		59.8	59.8
70.9	9:50:03		70.9	70.9	56.5	9:55:03		56.5	56.5
67.3	9:50:06		67.3	67.3	57.9	9:55:06		57.9	57.9
74	9:50:09		74	74	57.5	9:55:09		57.5	57.5
69.8	9:50:12		69.8	69.8	57.9	9:55:12		57.9	57.9
68	9:50:15		68	68	58	9:55:15		58	58
67	9:50:18		67	67	56.7	9:55:18		56.7	56.7
61.2	9:50:21		61.2	61.2	56.5	9:55:21		56.5	56.5
62.1	9:50:24		62.1	62.1	57.1	9:55:24		57.1	57.1
71.2	9:50:27		71.2	71.2	58.1	9:55:27		58.1	58.1
66.1	9:50:30		66.1	66.1	58.5	9:55:30		58.5	58.5
68.1	9:50:33		68.1	68.1	58	9:55:33		58	58
67.5	9:50:36		67.5	67.5	58.6	9:55:36		58.6	58.6
65	9:50:39		65	65	58.6	9:55:39		58.6	58.6
61.2	9:50:42		61.2	61.2	57.6	9:55:42		57.6	57.6
59.2	9:50:45		59.2	59.2	57.6	9:55:45		57.6	57.6
60.1	9:50:48		60.1	60.1	58.1	9:55:48		58.1	58.1
64.9	9:50:51		64.9	64.9	58.6	9:55:51		58.6	58.6
72.9	9:50:54		72.9	72.9	56.5	9:55:54		56.5	56.5
70.2	9:50:57		70.2	70.2	57	9:55:57		57	57
65.7	9:51:00		65.7	65.7	56.5	9:56:00		56.5	56.5
63.4	9:51:03		63.4	63.4	57	9:56:03		57	57
68	9:51:06		68	68	55.2	9:56:06		55.2	55.2
73.4	9:51:09		73.4	73.4	57	9:56:09		57	57
71.4	9:51:12		71.4	71.4	55.6	9:56:12		55.6	55.6
68.6	9:51:15		68.6	68.6	56	9:56:15		56	56
65.3	9:51:18		65.3	65.3	56.9	9:56:18		56.9	56.9
67.6	9:51:21		67.6	67.6	56.6	9:56:21		56.6	56.6
68.6	9:51:24		68.6	68.6	56.2	9:56:24		56.2	56.2
61.8	9:51:27		61.8	61.8	55.9	9:56:27		55.9	55.9
58.9	9:51:30		58.9	58.9	55.4	9:56:30		55.4	55.4
56.8	9:51:33		56.8	56.8	55.1	9:56:33		55.1	55.1
57.2	9:51:36		57.2	57.2	55.2	9:56:36		55.2	55.2
56.7	9:51:39		56.7	56.7	56.9	9:56:39		56.9	56.9
57.9	9:51:42		57.9	57.9	55.2	9:56:42		55.2	55.2
60.2	9:51:45		60.2	60.2	55	9:56:45		55	55
67.4	9:51:48		67.4	67.4	54.8	9:56:48		54.8	54.8
66.5	9:51:51		66.5	66.5	55.5	9:56:51		55.5	55.5
64.7	9:51:54		64.7	64.7	55	9:56:54		55	55
71.7	9:51:57		71.7	71.7	56.6	9:56:57		56.6	56.6
73	9:52:00		73	73	56.7	9:57:00		56.7	56.7
70.9	9:52:03		70.9	70.9	56.2	9:57:03		56.2	56.2
68.4	9:52:06		68.4	68.4	57.4	9:57:06		57.4	57.4
70	9:52:09		70	70	57.7	9:57:09		57.7	57.7
71.8	9:52:12		71.8	71.8	57.7	9:57:12		57.7	57.7
65.2	9:52:15		65.2	65.2	57.2	9:57:15		57.2	57.2
58.2	9:52:18		58.2	58.2	56.2	9:57:18		56.2	56.2

Site 1 - Near Southwest Corner of Project Site					Site 2 - On North Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
57.7	9:52:21		57.7	57.7	58.6	9:57:21		58.6	58.6
59.5	9:52:24		59.5	59.5	57.8	9:57:24		57.8	57.8
60.7	9:52:27		60.7	60.7	57.6	9:57:27		57.6	57.6
60.6	9:52:30		60.6	60.6	56.8	9:57:30		56.8	56.8
60.2	9:52:33		60.2	60.2	56.7	9:57:33		56.7	56.7
65.2	9:52:36		65.2	65.2	57.2	9:57:36		57.2	57.2
68.3	9:52:39		68.3	68.3	57.4	9:57:39		57.4	57.4
62.5	9:52:42		62.5	62.5	56.6	9:57:42		56.6	56.6
60	9:52:45		60	60	56	9:57:45		56	56
62.9	9:52:48		62.9	62.9	56.1	9:57:48		56.1	56.1
68.5	9:52:51		68.5	68.5	56.7	9:57:51		56.7	56.7
74.5	9:52:54		74.5	74.5	56.6	9:57:54		56.6	56.6
73.9	9:52:57		73.9	73.9	57.5	9:57:57		57.5	57.5
71.8	9:53:00		71.8	71.8	56.8	9:58:00		56.8	56.8
72	9:53:03		72	72	57.2	9:58:03		57.2	57.2
71.6	9:53:06		71.6	71.6	56.3	9:58:06		56.3	56.3
64.8	9:53:09		64.8	64.8	56.2	9:58:09		56.2	56.2
60.9	9:53:12		60.9	60.9	55.1	9:58:12		55.1	55.1
60.6	9:53:15		60.6	60.6	55.4	9:58:15		55.4	55.4
60.9	9:53:18		60.9	60.9	54.1	9:58:18		54.1	54.1
59.3	9:53:21		59.3	59.3	54.5	9:58:21		54.5	54.5
57.3	9:53:24		57.3	57.3	55.4	9:58:24		55.4	55.4
58.4	9:53:27		58.4	58.4	55.2	9:58:27		55.2	55.2
63.2	9:53:30		63.2	63.2	55.7	9:58:30		55.7	55.7
61.1	9:53:33		61.1	61.1	56.9	9:58:33		56.9	56.9
61.2	9:53:36		61.2	61.2	57.9	9:58:36		57.9	57.9
65	9:53:39		65	65	57.6	9:58:39		57.6	57.6
63.6	9:53:42		63.6	63.6	60.7	9:58:42		60.7	60.7
61	9:53:45		61	61	59.1	9:58:45		59.1	59.1
60.2	9:53:48		60.2	60.2	58.1	9:58:48		58.1	58.1
59.7	9:53:51		59.7	59.7	57.7	9:58:51		57.7	57.7
59.5	9:53:54		59.5	59.5	57.1	9:58:54		57.1	57.1
60.3	9:53:57		60.3	60.3	56.7	9:58:57		56.7	56.7
59	9:54:00		59	59	57	9:59:00		57	57
61.3	9:54:03		61.3	61.3	56.8	9:59:03		56.8	56.8
61.3	9:54:06		61.3	61.3	56.9	9:59:06		56.9	56.9
62.5	9:54:09		62.5	62.5	57.5	9:59:09		57.5	57.5
61.8	9:54:12		61.8	61.8	56.2	9:59:12		56.2	56.2
63.6	9:54:15		63.6	63.6	56.3	9:59:15		56.3	56.3
67.3	9:54:18		67.3	67.3	56.4	9:59:18		56.4	56.4
73.4	9:54:21		73.4	73.4	58	9:59:21		58	58
67.2	9:54:24		67.2	67.2	57.9	9:59:24		57.9	57.9
61.4	9:54:27		61.4	61.4	57.1	9:59:27		57.1	57.1
63.9	9:54:30		63.9	63.9	56.9	9:59:30		56.9	56.9
65.8	9:54:33		65.8	65.8	56.3	9:59:33		56.3	56.3
69.6	9:54:36		69.6	69.6	57.7	9:59:36		57.7	57.7
67.6	9:54:39		67.6	67.6	57.5	9:59:39		57.5	57.5
65.9	9:54:42		65.9	65.9	56.7	9:59:42		56.7	56.7
71.4	9:54:45		71.4	71.4	57.3	9:59:45		57.3	57.3
70.9	9:54:48		70.9	70.9	56.9	9:59:48		56.9	56.9
70.3	9:54:51		70.3	70.3	58.6	9:59:51		58.6	58.6
76	9:54:54		76	76	58.6	9:59:54		58.6	58.6
74.4	9:54:57		74.4	74.4	59	9:59:57		59	59
75.1	9:55:00		75.1	75.1	57.5	10:00:00		57.5	57.5
73.4	9:55:03		73.4	73.4	55.3	10:00:03		55.3	55.3
73.5	9:55:06		73.5	73.5	56	10:00:06		56	56
73.2	9:55:09		73.2	73.2	55.4	10:00:09		55.4	55.4
68.7	9:55:12		68.7	68.7	54.8	10:00:12		54.8	54.8
65.4	9:55:15		65.4	65.4	55.5	10:00:15		55.5	55.5
66.7	9:55:18		66.7	66.7	55.3	10:00:18		55.3	55.3
67.2	9:55:21		67.2	67.2	56.1	10:00:21		56.1	56.1
68.5	9:55:24		68.5	68.5	55.7	10:00:24		55.7	55.7
69.6	9:55:27		69.6	69.6	56.4	10:00:27		56.4	56.4
69	9:55:30		69	69	55.8	10:00:30		55.8	55.8
70.6	9:55:33		70.6	70.6	55.7	10:00:33		55.7	55.7
70.1	9:55:36		70.1	70.1	55.6	10:00:36		55.6	55.6
67.4	9:55:39		67.4	67.4	55.6	10:00:39		55.6	55.6
67.4	9:55:42		67.4	67.4	55.7	10:00:42		55.7	55.7
65.8	9:55:45		65.8	65.8	55	10:00:45		55	55
64.2	9:55:48		64.2	64.2	55.1	10:00:48		55.1	55.1
70.9	9:55:51		70.9	70.9	56.8	10:00:51		56.8	56.8
71.9	9:55:54		71.9	71.9	55.4	10:00:54		55.4	55.4
65.1	9:55:57		65.1	65.1	55.3	10:00:57		55.3	55.3
71.4	9:56:00		71.4	71.4	55	10:01:00		55	55
68.6	9:56:03		68.6	68.6	54.6	10:01:03		54.6	54.6
64.4	9:56:06		64.4	64.4	55.4	10:01:06		55.4	55.4
69.3	9:56:09		69.3	69.3	56.5	10:01:09		56.5	56.5
65.8	9:56:12		65.8	65.8	55.7	10:01:12		55.7	55.7
68.8	9:56:15		68.8	68.8	56.4	10:01:15		56.4	56.4
69	9:56:18		69	69	56	10:01:18		56	56
69	9:56:21		69	69	56	10:01:21		56	56
66.5	9:56:24		66.5	66.5	56.5	10:01:24		56.5	56.5
66.6	9:56:27		66.6	66.6	56.9	10:01:27		56.9	56.9
66.5	9:56:30		66.5	66.5	55.8	10:01:30		55.8	55.8
63.5	9:56:33		63.5	63.5	56.4	10:01:33		56.4	56.4
62	9:56:36		62	62	57.6	10:01:36		57.6	57.6

Site 1 - Near Southwest Corner of Project Site					Site 2 - On North Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
67.4	9:56:39		67.4	67.4	57.4	10:01:39		57.4	57.4
70.2	9:56:42		70.2	70.2	57	10:01:42		57	57
66.6	9:56:45		66.6	66.6	56.8	10:01:45		56.8	56.8
69.9	9:56:48		69.9	69.9	57.6	10:01:48		57.6	57.6
70	9:56:51		70	70	57.6	10:01:51		57.6	57.6
75.4	9:56:54		75.4	75.4	57.4	10:01:54		57.4	57.4
72.4	9:56:57		72.4	72.4	57.6	10:01:57		57.6	57.6
69.7	9:57:00		69.7	69.7	57.6	10:02:00		57.6	57.6
69.4	9:57:03		69.4	69.4	56.1	10:02:03		56.1	56.1
70.5	9:57:06		70.5	70.5	56.8	10:02:06		56.8	56.8
72.1	9:57:09		72.1	72.1	57	10:02:09		57	57
71.7	9:57:12		71.7	71.7	59.6	10:02:12		59.6	59.6
69.9	9:57:15		69.9	69.9	57.4	10:02:15		57.4	57.4
70.3	9:57:18		70.3	70.3	57.2	10:02:18		57.2	57.2
71.1	9:57:21		71.1	71.1	60.9	10:02:21		60.9	60.9
69.2	9:57:24		69.2	69.2	59	10:02:24		59	59
70.7	9:57:27		70.7	70.7	56.9	10:02:27		56.9	56.9
69.3	9:57:30		69.3	69.3	56.8	10:02:30		56.8	56.8
67.2	9:57:33		67.2	67.2	57.1	10:02:33		57.1	57.1
70.4	9:57:36		70.4	70.4	57.6	10:02:36		57.6	57.6
66.9	9:57:39		66.9	66.9	56.8	10:02:39		56.8	56.8
70.4	9:57:42		70.4	70.4	59.1	10:02:42		59.1	59.1
68.3	9:57:45		68.3	68.3	59.7	10:02:45		59.7	59.7
70.3	9:57:48		70.3	70.3	60.1	10:02:48		60.1	60.1
70.9	9:57:51		70.9	70.9	60.5	10:02:51		60.5	60.5
66.2	9:57:54		66.2	66.2	59.2	10:02:54		59.2	59.2
61.6	9:57:57		61.6	61.6	63.7	10:02:57		63.7	63.7
60.6	9:58:00		60.6	60.6	62.2	10:03:00		62.2	62.2
62.1	9:58:03		62.1	62.1	61.7	10:03:03		61.7	61.7
65.4	9:58:06		65.4	65.4	59.3	10:03:06		59.3	59.3
67.7	9:58:09		67.7	67.7	58.3	10:03:09		58.3	58.3
68.3	9:58:12		68.3	68.3	58.1	10:03:12		58.1	58.1
70.9	9:58:15		70.9	70.9	56.8	10:03:15		56.8	56.8
70.5	9:58:18		70.5	70.5	57.9	10:03:18		57.9	57.9
70.4	9:58:21		70.4	70.4	57.4	10:03:21		57.4	57.4
69.3	9:58:24		69.3	69.3	56.8	10:03:24		56.8	56.8
60.7	9:58:27		60.7	60.7	57.9	10:03:27		57.9	57.9
56.9	9:58:30		56.9	56.9	57.8	10:03:30		57.8	57.8
58	9:58:33		58	58	58.4	10:03:33		58.4	58.4
57.7	9:58:36		57.7	57.7	58.6	10:03:36		58.6	58.6
57.6	9:58:39		57.6	57.6	56.8	10:03:39		56.8	56.8
58	9:58:42		58	58	57.3	10:03:42		57.3	57.3
59	9:58:45		59	59	56	10:03:45		56	56
59.8	9:58:48		59.8	59.8	58.1	10:03:48		58.1	58.1
63.1	9:58:51		63.1	63.1	57	10:03:51		57	57
72.4	9:58:54		72.4	72.4	56.9	10:03:54		56.9	56.9
74.2	9:58:57		74.2	74.2	58	10:03:57		58	58
71.7	9:59:00		71.7	71.7	57.7	10:04:00		57.7	57.7
71	9:59:03		71	71	58.5	10:04:03		58.5	58.5
73.7	9:59:06		73.7	73.7	60	10:04:06		60	60
73.9	9:59:09		73.9	73.9	59	10:04:09		59	59
68.4	9:59:12		68.4	68.4	59.7	10:04:12		59.7	59.7
68.5	9:59:15		68.5	68.5	58.5	10:04:15		58.5	58.5
65.1	9:59:18		65.1	65.1	57.6	10:04:18		57.6	57.6
70.5	9:59:21		70.5	70.5	58.2	10:04:21		58.2	58.2
63.2	9:59:24		63.2	63.2	60.2	10:04:24		60.2	60.2
63	9:59:27		63	63	58.2	10:04:27		58.2	58.2
68.9	9:59:30		68.9	68.9	58.7	10:04:30		58.7	58.7
70.2	9:59:33		70.2	70.2	59.4	10:04:33		59.4	59.4
69.4	9:59:36		69.4	69.4	58.5	10:04:36		58.5	58.5
67.9	9:59:39		67.9	67.9	60.2	10:04:39		60.2	60.2
66.5	9:59:42		66.5	66.5	58.8	10:04:42		58.8	58.8
67.4	9:59:45		67.4	67.4	57.7	10:04:45		57.7	57.7
66.4	9:59:48		66.4	66.4	57.1	10:04:48		57.1	57.1
66	9:59:51		66	66	57.6	10:04:51		57.6	57.6
64.3	9:59:54		64.3	64.3	62.1	10:04:54		62.1	62.1
63.7	9:59:57		63.7	63.7	61.8	10:04:57		61.8	61.8
63.1	10:00:00		63.1	63.1	60.7	10:05:00		60.7	60.7
63.7	10:00:03		63.7	63.7	59.3	10:05:03		59.3	59.3
65.2	10:00:06		65.2	65.2	57.7	10:05:06		57.7	57.7
68.4	10:00:09		68.4	68.4	58.2	10:05:09		58.2	58.2
73.1	10:00:12		73.1	73.1	57	10:05:12		57	57
66.3	10:00:15		66.3	66.3	58.4	10:05:15		58.4	58.4
62.9	10:00:18		62.9	62.9	59.3	10:05:18		59.3	59.3
66.6	10:00:21		66.6	66.6	57.1	10:05:21		57.1	57.1
70.1	10:00:24		70.1	70.1	57.5	10:05:24		57.5	57.5
63.2	10:00:27		63.2	63.2	59	10:05:27		59	59
61.1	10:00:30		61.1	61.1	58.4	10:05:30		58.4	58.4
63.4	10:00:33		63.4	63.4	59.1	10:05:33		59.1	59.1
59.1	10:00:36		59.1	59.1	58.9	10:05:36		58.9	58.9
59.5	10:00:39		59.5	59.5	57.3	10:05:39		57.3	57.3
61.3	10:00:42		61.3	61.3	57.2	10:05:42		57.2	57.2
66.4	10:00:45		66.4	66.4	57.9	10:05:45		57.9	57.9
73.6	10:00:48		73.6	73.6	58.6	10:05:48		58.6	58.6
71.4	10:00:51		71.4	71.4	58.5	10:05:51		58.5	58.5
71.4	10:00:54		71.4	71.4	58.3	10:05:54		58.3	58.3

Site 1 - Near Southwest Corner of Project Site					Site 2 - On North Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
65.5	10:00:57		65.5	65.5	58.4	10:05:57		58.4	58.4
62.5	10:01:00		62.5	62.5	58.2	10:06:00		58.2	58.2
61.9	10:01:03		61.9	61.9	59.5	10:06:03		59.5	59.5
64.1	10:01:06		64.1	64.1	59.8	10:06:06		59.8	59.8
66	10:01:09		66	66	61	10:06:09		61	61
71.8	10:01:12		71.8	71.8	59.9	10:06:12		59.9	59.9
69.3	10:01:15		69.3	69.3	58.5	10:06:15		58.5	58.5
67.3	10:01:18		67.3	67.3	58.8	10:06:18		58.8	58.8
66.8	10:01:21		66.8	66.8	57.6	10:06:21		57.6	57.6
65.7	10:01:24		65.7	65.7	58.1	10:06:24		58.1	58.1
69	10:01:27		69	69	57	10:06:27		57	57
71.6	10:01:30		71.6	71.6	58.2	10:06:30		58.2	58.2
67.9	10:01:33		67.9	67.9	57.6	10:06:33		57.6	57.6
70.1	10:01:36		70.1	70.1	55.9	10:06:36		55.9	55.9
68.4	10:01:39		68.4	68.4	55.8	10:06:39		55.8	55.8
67.2	10:01:42		67.2	67.2	56.5	10:06:42		56.5	56.5
69.6	10:01:45		69.6	69.6	58.2	10:06:45		58.2	58.2
72.3	10:01:48		72.3	72.3	61.2	10:06:48		61.2	61.2
72.5	10:01:51		72.5	72.5	61.8	10:06:51		61.8	61.8
69.8	10:01:54		69.8	69.8	58.9	10:06:54		58.9	58.9
71.7	10:01:57		71.7	71.7	58.2	10:06:57		58.2	58.2
71.2	10:02:00		71.2	71.2	57.6	10:07:00		57.6	57.6
73.4	10:02:03		73.4	73.4	58.9	10:07:03		58.9	58.9
72	10:02:06		72	72	58.6	10:07:06		58.6	58.6
73.2	10:02:09		73.2	73.2	57.8	10:07:09		57.8	57.8
71.3	10:02:12		71.3	71.3	58.5	10:07:12		58.5	58.5
69.6	10:02:15		69.6	69.6	57.9	10:07:15		57.9	57.9
70.4	10:02:18		70.4	70.4	57.7	10:07:18		57.7	57.7
67.6	10:02:21		67.6	67.6	57.9	10:07:21		57.9	57.9
69.8	10:02:24		69.8	69.8	56.8	10:07:24		56.8	56.8
70.4	10:02:27		70.4	70.4	56.6	10:07:27		56.6	56.6
71.2	10:02:30		71.2	71.2	56.5	10:07:30		56.5	56.5
70.1	10:02:33		70.1	70.1	58	10:07:33		58	58
66.9	10:02:36		66.9	66.9	58.1	10:07:36		58.1	58.1
64.7	10:02:39		64.7	64.7	57.6	10:07:39		57.6	57.6
64.6	10:02:42		64.6	64.6	58.4	10:07:42		58.4	58.4
64.9	10:02:45		64.9	64.9	56.9	10:07:45		56.9	56.9
71.3	10:02:48		71.3	71.3	55.9	10:07:48		55.9	55.9
69.2	10:02:51		69.2	69.2	56	10:07:51		56	56
71	10:02:54		71	71	56.8	10:07:54		56.8	56.8
75.9	10:02:57		75.9	75.9	57.4	10:07:57		57.4	57.4
73.8	10:03:00		73.8	73.8	57.8	10:08:00		57.8	57.8
72.4	10:03:03		72.4	72.4	56.6	10:08:03		56.6	56.6
66.2	10:03:06		66.2	66.2	55.8	10:08:06		55.8	55.8
63.9	10:03:09		63.9	63.9	55.5	10:08:09		55.5	55.5
68.7	10:03:12		68.7	68.7	57.4	10:08:12		57.4	57.4
73.6	10:03:15		73.6	73.6	57.2	10:08:15		57.2	57.2
73.8	10:03:18		73.8	73.8	57.4	10:08:18		57.4	57.4
83.2	10:03:21		83.2	83.2	58.2	10:08:21		58.2	58.2
70.4	10:03:24		70.4	70.4	57.2	10:08:24		57.2	57.2
68.6	10:03:27		68.6	68.6	56.2	10:08:27		56.2	56.2
74	10:03:30		74	74	56.5	10:08:30		56.5	56.5
71.8	10:03:33		71.8	71.8	56.9	10:08:33		56.9	56.9
70.9	10:03:36		70.9	70.9	57.2	10:08:36		57.2	57.2
72.2	10:03:39		72.2	72.2	56.1	10:08:39		56.1	56.1
69.8	10:03:42		69.8	69.8	56.8	10:08:42		56.8	56.8
72.3	10:03:45		72.3	72.3	56.9	10:08:45		56.9	56.9
66.3	10:03:48		66.3	66.3	56.4	10:08:48		56.4	56.4
62.7	10:03:51		62.7	62.7	56	10:08:51		56	56
60.1	10:03:54		60.1	60.1	56.4	10:08:54		56.4	56.4
60.6	10:03:57		60.6	60.6	56.4	10:08:57		56.4	56.4
67.6	10:04:00		67.6	67.6	56.2	10:09:00		56.2	56.2
65.6	10:04:03		65.6	65.6	56.2	10:09:03		56.2	56.2
63.9	10:04:06		63.9	63.9	56	10:09:06		56	56
66.5	10:04:09		66.5	66.5	55.9	10:09:09		55.9	55.9
62.5	10:04:12		62.5	62.5	56.8	10:09:12		56.8	56.8
60.4	10:04:15		60.4	60.4	58.1	10:09:15		58.1	58.1
59.3	10:04:18		59.3	59.3	57.8	10:09:18		57.8	57.8
59.1	10:04:21		59.1	59.1	57.2	10:09:21		57.2	57.2
58.8	10:04:24		58.8	58.8	58.5	10:09:24		58.5	58.5
59.2	10:04:27		59.2	59.2	57.3	10:09:27		57.3	57.3
65.9	10:04:30		65.9	65.9	56.6	10:09:30		56.6	56.6
67.7	10:04:33		67.7	67.7	57.9	10:09:33		57.9	57.9
67.2	10:04:36		67.2	67.2	58.8	10:09:36		58.8	58.8
62.2	10:04:39		62.2	62.2	59.6	10:09:39		59.6	59.6
63.7	10:04:42		63.7	63.7	60.5	10:09:42		60.5	60.5
68.1	10:04:45		68.1	68.1	63.5	10:09:45		63.5	63.5
62.4	10:04:48		62.4	62.4	61.8	10:09:48		61.8	61.8
63	10:04:51		63	63	65.7	10:09:51		65.7	65.7
67.5	10:04:54		67.5	67.5	63.6	10:09:54		63.6	63.6
65.6	10:04:57		65.6	65.6	65.1	10:09:57		65.1	65.1
66.9	10:05:00		66.9	66.9	68.1	10:10:00		68.1	68.1
73.1	10:05:03		73.1	73.1	64.2	10:10:03		64.2	64.2
68.4	10:05:06		68.4	68.4	63.3	10:10:06		63.3	63.3
62.1	10:05:09		62.1	62.1	61.8	10:10:09		61.8	61.8
71.5	10:05:12		71.5	71.5	62.4	10:10:12		62.4	62.4
68.4	10:05:15		68.4	68.4	61.6	10:10:15		61.6	61.6
59.5	10:05:18		59.5	59.5	61.3	10:10:18		61.3	61.3
57.7	10:05:21		57.7	57.7	62.9	10:10:21		62.9	62.9
57.9	10:05:24		57.9	57.9	60.8	10:10:24		60.8	60.8
59.5	10:05:27		59.5	59.5	59	10:10:27		59	59

Site 1 - Near Southwest Corner of Project Site					Site 2 - On North Side of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
64.4	10:05:30		64.4	64.4	58.1	10:10:30		58.1	58.1
65.6	10:05:33		65.6	65.6	58	10:10:33		58	58
65.5	10:05:36		65.5	65.5	57.9	10:10:36		57.9	57.9
65.2	10:05:39		65.2	65.2	58.4	10:10:39		58.4	58.4
69.5	10:05:42		69.5	69.5	58	10:10:42		58	58
67.6	10:05:45		67.6	67.6	57.8	10:10:45		57.8	57.8
62.2	10:05:48		62.2	62.2	57.5	10:10:48		57.5	57.5
64.6	10:05:51		64.6	64.6	56.8	10:10:51		56.8	56.8
59.4	10:05:54		59.4	59.4	56.3	10:10:54		56.3	56.3
60.5	10:05:57		60.5	60.5	56.5	10:10:57		56.5	56.5
61.4	10:06:00		61.4	61.4	56.5	10:11:00		56.5	56.5
60.3	10:06:03		60.3	60.3	57.5	10:11:03		57.5	57.5
59.6	10:06:06		59.6	59.6	58	10:11:06		58	58
60.4	10:06:09		60.4	60.4	57.6	10:11:09		57.6	57.6
69.6	10:06:12		69.6	69.6	57.9	10:11:12		57.9	57.9
68.3	10:06:15		68.3	68.3	57.9	10:11:15		57.9	57.9
69.1	10:06:18		69.1	69.1	57.2	10:11:18		57.2	57.2
72.2	10:06:21		72.2	72.2	57	10:11:21		57	57
71.4	10:06:24		71.4	71.4	57.4	10:11:24		57.4	57.4
70.4	10:06:27		70.4	70.4	56.8	10:11:27		56.8	56.8
66.7	10:06:30		66.7	66.7	56.2	10:11:30		56.2	56.2
70.5	10:06:33		70.5	70.5	55.7	10:11:33		55.7	55.7
72	10:06:36		72	72	55.7	10:11:36		55.7	55.7
72	10:06:39		72	72	55.5	10:11:39		55.5	55.5
69.4	10:06:42		69.4	69.4	55.5	10:11:42		55.5	55.5
68.2	10:06:45		68.2	68.2	55.2	10:11:45		55.2	55.2
65.4	10:06:48		65.4	65.4	55.6	10:11:48		55.6	55.6
68.9	10:06:51		68.9	68.9	55.6	10:11:51		55.6	55.6
71.6	10:06:54		71.6	71.6	54.9	10:11:54		54.9	54.9
71.6	10:06:57		71.6	71.6	55.1	10:11:57		55.1	55.1
72.3	10:07:00		72.3	72.3	55	10:12:00		55	55
72.2	10:07:03		72.2	72.2	55.3	10:12:03		55.3	55.3
74.4	10:07:06		74.4	74.4	55.4	10:12:06		55.4	55.4
68.4	10:07:09		68.4	68.4	55.3	10:12:09		55.3	55.3
69.7	10:07:12		69.7	69.7	56.2	10:12:12		56.2	56.2
72.6	10:07:15		72.6	72.6	56.4	10:12:15		56.4	56.4
70.8	10:07:18		70.8	70.8	56.9	10:12:18		56.9	56.9
64.4	10:07:21		64.4	64.4	56.9	10:12:21		56.9	56.9
68	10:07:24		68	68	56.5	10:12:24		56.5	56.5
73.6	10:07:27		73.6	73.6	57.9	10:12:27		57.9	57.9
67.8	10:07:30		67.8	67.8	57.9	10:12:30		57.9	57.9
69.8	10:07:33		69.8	69.8	57.5	10:12:33		57.5	57.5
67.9	10:07:36		67.9	67.9	56.6	10:12:36		56.6	56.6
67.3	10:07:39		67.3	67.3	56.4	10:12:39		56.4	56.4
71	10:07:42		71	71	57.1	10:12:42		57.1	57.1
66.7	10:07:45		66.7	66.7	56.8	10:12:45		56.8	56.8
67.6	10:07:48		67.6	67.6	56	10:12:48		56	56
62.8	10:07:51		62.8	62.8	55.6	10:12:51		55.6	55.6
59.8	10:07:54		59.8	59.8	56.4	10:12:54		56.4	56.4
59.5	10:07:57		59.5	59.5	56.6	10:12:57		56.6	56.6
59.4	10:08:00		59.4	59.4	57.3	10:13:00		57.3	57.3
64.8	10:08:03		64.8	64.8	56.3	10:13:03		56.3	56.3
67	10:08:06		67	67	55.3	10:13:06		55.3	55.3
71.6	10:08:09		71.6	71.6	55	10:13:09		55	55
71.3	10:08:12		71.3	71.3	55.3	10:13:12		55.3	55.3
72.1	10:08:15		72.1	72.1	55.2	10:13:15		55.2	55.2
67.3	10:08:18		67.3	67.3	55.3	10:13:18		55.3	55.3
69.8	10:08:21		69.8	69.8	54.9	10:13:21		54.9	54.9
70	10:08:24		70	70	54.5	10:13:24		54.5	54.5
65.1	10:08:27		65.1	65.1	54.6	10:13:27		54.6	54.6
75.7	10:08:30		75.7	75.7	54.7	10:13:30		54.7	54.7
72.3	10:08:33		72.3	72.3	55.3	10:13:33		55.3	55.3
63.2	10:08:36		63.2	63.2	54.6	10:13:36		54.6	54.6
59.2	10:08:39		59.2	59.2	54.5	10:13:39		54.5	54.5
66.3	10:08:42		66.3	66.3	54.2	10:13:42		54.2	54.2
65.8	10:08:45		65.8	65.8	54.3	10:13:45		54.3	54.3
70.5	10:08:48		70.5	70.5	54.5	10:13:48		54.5	54.5
71.7	10:08:51		71.7	71.7	55.2	10:13:51		55.2	55.2
73	10:08:54		73	73	55.5	10:13:54		55.5	55.5
71.6	10:08:57		71.6	71.6	55.8	10:13:57		55.8	55.8
71.3	10:09:00		71.3	71.3	57	10:14:00		57	57
68.3	10:09:03		68.3	68.3	56.4	10:14:03		56.4	56.4
69.9	10:09:06		69.9	69.9	56.4	10:14:06		56.4	56.4
68.1	10:09:09		68.1	68.1	55.8	10:14:09		55.8	55.8
68.4	10:09:12		68.4	68.4	56.4	10:14:12		56.4	56.4
71.1	10:09:15		71.1	71.1	57.5	10:14:15		57.5	57.5
69.8	10:09:18		69.8	69.8	58	10:14:18		58	58
67.9	10:09:21		67.9	67.9	56.9	10:14:21		56.9	56.9
65.7	10:09:24		65.7	65.7	56.6	10:14:24		56.6	56.6
69.1	10:09:27		69.1	69.1	56.4	10:14:27		56.4	56.4
72.4	10:09:30		72.4	72.4	55.7	10:14:30		55.7	55.7
76.2	10:09:33		76.2	76.2	56.6	10:14:33		56.6	56.6
71.6	10:09:36		71.6	71.6	56.3	10:14:36		56.3	56.3
66.7	10:09:39		66.7	66.7	55.2	10:14:39		55.2	55.2
68.6	10:09:42		68.6	68.6	55.5	10:14:42		55.5	55.5
66	10:09:45		66	66	55.7	10:14:45		55.7	55.7
62.4	10:09:48		62.4	62.4	54.9	10:14:48		54.9	54.9
63.2	10:09:51		63.2	63.2	55.7	10:14:51		55.7	55.7
64.2	10:09:54		64.2	64.2	55.4	10:14:54		55.4	55.4
69.6	10:09:57		69.6	69.6	55.9	10:14:57		55.9	55.9
65.7	10:10:00	68.6	65.7	65.7	55.7	10:15:00	58.2	55.7	55.7
68.1	10:10:03	68.6	68.1	68.1	55.6	10:15:03	58.2	55.6	55.6
68.4	10:10:06	68.6	68.4	68.4	55.7	10:15:06	58.2	55.7	55.7
70.4	10:10:09	68.6	70.4	70.4	55.8	10:15:09	58.2	55.8	55.8
74.2	10:10:12	68.6	74.2	74.2	56.5	10:15:12	58.2	56.5	56.5
73.1	10:10:15	68.6	73.1	73.1	57.7	10:15:15	58.2	57.7	57.7
72.2	10:10:18	68.6	72.2	72.2	59.1	10:15:18	58.2	59.1	59.1
69.4	10:10:21	68.6	69.4	69.4	57.8	10:15:21	58.2	57.8	57.8
69.5	10:10:24	68.7	69.5	69.5	56.8	10:15:24	58.2	56.8	56.8
65.5	10:10:27	68.7	65.5	65.5	56.9	10:15:27	58.2	56.9	56.9
75	10:10:30	68.6	75	75	56.4	10:15:30	58.2	56.4	56.4
78.1	10:10:33	68.6	78.1	78.1	56	10:15:33	58.2	56	56
70.4	10:10:36	68.6	70.4	70.4	55.7	10:15:36	58.1	55.7	55.7

APPENDIX C

RCNM Model Construction Noise Calculation Printouts

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multifamily Homes to North	Residential	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	220	0
Dozer	No	40		81.7	220	0
Tractor	No	40	84		220	0
Front End Loader	No	40		79.1	220	0
Backhoe	No	40		77.6	220	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Concrete Saw		76.7	69.7	N/A	N/A	N/A	N/A
Dozer		68.8	64.8	N/A	N/A	N/A	N/A
Tractor		71.1	67.2	N/A	N/A	N/A	N/A
Front End Loader		66.2	62.3	N/A	N/A	N/A	N/A
Backhoe		64.7	60.7	N/A	N/A	N/A	N/A
	Total	**77**	**73**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Demolition

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multifamily Homes to South	Residential	68.5	68.5	68.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	280	0
Dozer	No	40		81.7	280	0
Tractor	No	40	84		280	0
Front End Loader	No	40		79.1	280	0
Backhoe	No	40		77.6	280	0

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		74.6	68	N/A	N/A	N/A	N/A
Dozer		66.7	62.7	N/A	N/A	N/A	N/A
Tractor		69.0	65.1	N/A	N/A	N/A	N/A
Front End Loader		64.1	60.2	N/A	N/A	N/A	N/A
Backhoe		62.6	58.6	N/A	N/A	N/A	N/A
	Total	**75**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Demolition

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Church to East	Commercial	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	120	0
Dozer	No	40		81.7	120	0
Tractor	No	40	84		120	0
Front End Loader	No	40		79.1	120	0
Backhoe	No	40		77.6	120	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Concrete Saw		82	75	N/A	N/A	N/A	N/A
Dozer		74	70	N/A	N/A	N/A	N/A
Tractor		76	72	N/A	N/A	N/A	N/A
Front End Loader		72	68	N/A	N/A	N/A	N/A
Backhoe		70	66	N/A	N/A	N/A	N/A
	Total	**82**	**78**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multifamily Homes to North	Residential	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		220	0
Dozer	No	40		81.7	220	0
Tractor	No	40	84		220	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		72.1	68.2	N/A	N/A	N/A	N/A
Dozer		68.8	64.8	N/A	N/A	N/A	N/A
Tractor		71.1	67.2	N/A	N/A	N/A	N/A
	Total	**72**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multifamily Homes to South	Residential	68.5	68.5	68.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		280	0
Dozer	No	40		81.7	280	0
Tractor	No	40	84		280	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		70.0	66.1	N/A	N/A	N/A	N/A
Dozer		66.7	62.7	N/A	N/A	N/A	N/A
Tractor		69.0	65.1	N/A	N/A	N/A	N/A
	Total	**70**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Site Preparation

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Church to East	Commercial	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		120	0
Dozer	No	40		81.7	120	0
Tractor	No	40	84		120	0

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		77.4	73.4	N/A	N/A	N/A	N/A
Dozer		74.1	70.1	N/A	N/A	N/A	N/A
Tractor		76.4	72.4	N/A	N/A	N/A	N/A
	Total	**77**	**77**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multifamily Homes to North	Residential	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		220	0
Dozer	No	40		81.7	220	0
Tractor	No	40	84		220	0
Front End Loader	No	40		79.1	220	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Grader		72.1	68.2	N/A	N/A	N/A	N/A
Dozer		68.8	64.8	N/A	N/A	N/A	N/A
Tractor		71.1	67.2	N/A	N/A	N/A	N/A
Front End Loader		66.2	62.3	N/A	N/A	N/A	N/A
	Total	**72**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Grading

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multifamily Homes to South	Residential	68.5	68.5	68.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		280	0
Dozer	No	40		81.7	280	0
Tractor	No	40	84		280	0
Front End Loader	No	40		79.1	280	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		70.0	66.1	N/A	N/A	N/A	N/A
Dozer		66.7	62.7	N/A	N/A	N/A	N/A
Tractor		69.0	65.1	N/A	N/A	N/A	N/A
Front End Loader		64.1	60.2	N/A	N/A	N/A	N/A
	Total	**70**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Grading

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Church to East	Commercial	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		120	0
Dozer	No	40		81.7	120	0
Tractor	No	40	84		120	0
Front End Loader	No	40		79.1	120	0

Results

Equipment		Calculated (dBA) *Lmax	Leq	Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Grader		77.4	73.4	N/A	N/A	N/A	N/A
Dozer		74.1	70.1	N/A	N/A	N/A	N/A
Tractor		76.4	72.4	N/A	N/A	N/A	N/A
Front End Loader		71.5	67.5	N/A	N/A	N/A	N/A
	Total	**77**	**77**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multifamily Homes to North	Residential	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	220	0
Gradall	No	40		83.4	220	0
Generator	No	50		80.6	220	0
Tractor	No	40	84		220	0
Welder / Torch	No	40		74	220	0
Welder / Torch	No	40		74.0	220	0
Welder / Torch	No	40		74.0	220	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Crane	67.7	59.7	N/A	N/A	N/A	N/A
Gradall	70.5	66.6	N/A	N/A	N/A	N/A
Generator	67.8	64.8	N/A	N/A	N/A	N/A
Tractor	71.1	67.2	N/A	N/A	N/A	N/A
Welder / Torch	61.1	57.2	N/A	N/A	N/A	N/A
Welder / Torch	61.1	57.2	N/A	N/A	N/A	N/A
Welder / Torch	61.1	57.2	N/A	N/A	N/A	N/A
Total	**71**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Building Construction

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multifamily Homes to South	Residential	69	69	68.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	280	0
Gradall	No	40		83.4	280	0
Generator	No	50		80.6	280	0
Tractor	No	40	84		280	0
Welder / Torch	No	40		74	280	0
Welder / Torch	No	40		74	280	0
Welder / Torch	No	40		74	280	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		66	58	N/A	N/A	N/A	N/A
Gradall		68	65	N/A	N/A	N/A	N/A
Generator		66	63	N/A	N/A	N/A	N/A
Tractor		69.0	65.1	N/A	N/A	N/A	N/A
Welder / Torch		59.0	55.1	N/A	N/A	N/A	N/A
Welder / Torch		59.0	55.1	N/A	N/A	N/A	N/A
Welder / Torch		59.0	55.1	N/A	N/A	N/A	N/A
	Total	**69**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Building Construction

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Church to East	Commercial	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	120	0
Gradall	No	40		83.4	120	0
Generator	No	50		80.6	120	0
Tractor	No	40	84		120	0
Welder / Torch	No	40		74	120	0
Welder / Torch	No	40		74	120	0
Welder / Torch	No	40		74	120	0

		Calculated (dBA)		Results Day		Noise Limits (dBA) Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		72.9	65.0	N/A	N/A	N/A	N/A
Gradall		75.8	71.8	N/A	N/A	N/A	N/A
Generator		73.0	70.0	N/A	N/A	N/A	N/A
Tractor		76.4	72.4	N/A	N/A	N/A	N/A
Welder / Torch		66.4	62.4	N/A	N/A	N/A	N/A
Welder / Torch		66.4	62.4	N/A	N/A	N/A	N/A
Welder / Torch		66.4	62.4	N/A	N/A	N/A	N/A
	Total	**76**	**77**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Multifamily Homes to North	Residential	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	220	0
Paver	No	50		77.2	220	0
Paver	No	50		77.2	220	0
Roller	No	20		80	220	0
Tractor	No	40	84		220	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Concrete Mixer Truck		65.9	62	N/A	N/A	N/A	N/A
Paver		64.4	61.3	N/A	N/A	N/A	N/A
Paver		64.4	61.3	N/A	N/A	N/A	N/A
Roller		67.1	60.1	N/A	N/A	N/A	N/A
Tractor		71.1	67.2	N/A	N/A	N/A	N/A
	Total	**71**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Paving

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multifamily Homes to South	Residential	68.5	68.5	68.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40.0		78.8	280	0
Paver	No	50		77.2	280	0
Paver	No	50		77.2	280	0
Roller	No	20		80	280	0
Tractor	No	40	84		280	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		63.8	59.9	N/A	N/A	N/A	N/A
Paver		62.3	59.2	N/A	N/A	N/A	N/A
Paver		62.3	59.2	N/A	N/A	N/A	N/A
Roller		65.0	58.0	N/A	N/A	N/A	N/A
Tractor		69.0	65.1	N/A	N/A	N/A	N/A
	Total	**69**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Paving

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Church to East	Commercial	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	120	0
Paver	No	50		77.2	120	0
Paver	No	50		77.2	120	0
Roller	No	20		80	120	0
Tractor	No	40	84		120	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		71.2	67.2	N/A	N/A	N/A	N/A
Paver		69.6	66.6	N/A	N/A	N/A	N/A
Paver		69.6	66.6	N/A	N/A	N/A	N/A
Roller		72.4	65.4	N/A	N/A	N/A	N/A
Tractor		76.4	72.4	N/A	N/A	N/A	N/A
	Total	**76**	**76**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Painting

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multifamily Homes to North	Residential	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	220	0

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		64.8	60.8	N/A	N/A	N/A	N/A
	Total	**65**	**61**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multifamily Homes to South	Residential	68.5	68.5	68.5

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	280	0

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		62.7	58.7	N/A	N/A	N/A	N/A
	Total	**63**	**59**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 3/12/2022
Case Description: West Broadway Townhomes - Painting

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Church to East	Commercial	55.8	55.8	55.8

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	120	0

		Results Calculated (dBA)		Day	Noise Limits (dBA)	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		70.1	66.1	N/A	N/A	N/A	N/A
	Total	**70**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

FHWA Model Offsite Traffic Noise Calculation Printouts

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2				Vehicle Mix 3 (I-5)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	g	Night	Daily
Automobiles	67.10%	12.60%	15.50%	97.00%	69.50%	12.90%	9.60%	92.00%	59.66%	8.14%	22.60%	90.40%
Medium Trucks	1.30%	0.20%	0.50%	2.00%	1.44%	0.06%	1.50%	3.00%	3.59%	0.60%	1.79%	5.98%
Heavy Trucks	0.60%	0.10%	0.30%	1.00%	2.40%	0.10%	2.50%	5.00%	1.85%	0.33%	1.45%	3.62%

Road Name: Euclid Street **Segment: South of West Broadway**

Average Daily Traffic: 29230 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Primary Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.25 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	3.55	-1.63	-1.20	65.83	63.45	62.16	56.11	64.54	65.17	70 dBA:	**36**	**39**
Medium Trucks	74.83	-11.32	-1.63	-1.20	60.68	41.47	33.69	42.90	49.05	49.08	65 dBA:	**77**	**83**
Heavy Trucks	80.05	-9.10	-1.63	-1.20	68.11	51.12	43.34	52.55	58.70	58.74	60 dBA:	**166**	**180**
				Total:	**70.60**	**63.73**	**62.22**	**57.83**	**65.64**	**66.15**	55 dBA:	**359**	**387**

Road Name: West Broadway **Segment: West of Euclid Street**

Average Daily Traffic: 17630 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.73 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	0.77	0.34	-1.20	67.27	64.90	63.61	57.55	65.98	66.61	70 dBA:	**34**	**37**
Medium Trucks	76.31	-14.09	0.34	-1.20	61.36	42.15	34.37	43.58	49.73	49.76	65 dBA:	**73**	**79**
Heavy Trucks	81.16	-11.87	0.34	-1.20	68.42	51.43	43.65	52.86	59.01	59.05	60 dBA:	**158**	**171**
				Total:	**71.35**	**65.11**	**63.65**	**58.95**	**66.86**	**67.39**	55 dBA:	**340**	**368**

Road Name: West Broadway **Segment: East of Euclid Street**

Average Daily Traffic: 16914 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.17	-0.42	-1.20	64.66	62.29	60.99	54.94	63.37	64.00	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.69	-0.42	-1.20	59.51	40.30	32.52	41.73	47.88	47.92	65 dBA:	**55**	**60**
Heavy Trucks	80.05	-11.47	-0.42	-1.20	66.95	49.96	42.18	51.38	57.54	57.57	60 dBA:	**119**	**129**
				Total:	**69.43**	**62.56**	**61.06**	**56.67**	**64.48**	**64.98**	55 dBA:	**257**	**278**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

Road Name: West Broadway **Segment: East of Project Driveway**

Average Daily Traffic: 16914 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.17	-0.42	-1.20	64.66	62.29	60.99	54.94	63.37	64.00	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.69	-0.42	-1.20	59.51	40.30	32.52	41.73	47.88	47.92	65 dBA:	**55**	**60**
Heavy Trucks	80.05	-11.47	-0.42	-1.20	66.95	49.96	42.18	51.38	57.54	57.57	60 dBA:	**119**	**129**
				Total:	**69.43**	**62.56**	**61.06**	**56.67**	**64.48**	**64.98**	55 dBA:	**257**	**278**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2				Vehicle Mix 3 (I-5)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	g	Night	Daily
Automobiles	67.10%	12.60%	15.50%	97.00%	69.50%	12.90%	9.60%	92.00%	59.66%	8.14%	22.60%	90.40%
Medium Trucks	1.30%	0.20%	0.50%	2.00%	1.44%	0.06%	1.50%	3.00%	3.59%	0.60%	1.79%	5.98%
Heavy Trucks	0.60%	0.10%	0.30%	1.00%	2.40%	0.10%	2.50%	5.00%	1.85%	0.33%	1.45%	3.62%

Road Name: Euclid Street **Segment: South of West Broadway**

Average Daily Traffic: 29258 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Primary Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.25 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	3.55	-1.63	-1.20	65.83	63.46	62.16	56.11	64.54	65.17	70 dBA:	**36**	**39**
Medium Trucks	74.83	-11.31	-1.63	-1.20	60.68	41.47	33.69	42.90	49.05	49.09	65 dBA:	**77**	**84**
Heavy Trucks	80.05	-9.09	-1.63	-1.20	68.12	51.13	43.35	52.55	58.71	58.74	60 dBA:	**167**	**180**
				Total:	**70.60**	**63.73**	**62.23**	**57.84**	**65.65**	**66.15**	55 dBA:	**359**	**388**

Road Name: West Broadway **Segment: West of Euclid Street**

Average Daily Traffic: 17658 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.73 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	0.78	0.34	-1.20	67.28	64.91	63.61	57.56	65.99	66.62	70 dBA:	**34**	**37**
Medium Trucks	76.31	-14.09	0.34	-1.20	61.36	42.16	34.37	43.58	49.74	49.77	65 dBA:	**73**	**79**
Heavy Trucks	81.16	-11.87	0.34	-1.20	68.43	51.44	43.66	52.87	59.02	59.05	60 dBA:	**158**	**171**
				Total:	**71.36**	**65.12**	**63.66**	**58.96**	**66.87**	**67.40**	55 dBA:	**340**	**369**

Road Name: West Broadway **Segment: East of Euclid Street**

Average Daily Traffic: 17034 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.21	-0.42	-1.20	64.69	62.32	61.03	54.97	63.40	64.03	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.66	-0.42	-1.20	59.54	40.33	32.55	41.76	47.91	47.95	65 dBA:	**56**	**60**
Heavy Trucks	80.05	-11.44	-0.42	-1.20	66.98	49.99	42.21	51.42	57.57	57.60	60 dBA:	**120**	**129**
				Total:	**69.46**	**62.59**	**61.09**	**56.70**	**64.51**	**65.01**	55 dBA:	**258**	**279**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

Road Name: West Broadway **Segment: East of Project Driveway**

Average Daily Traffic: 16979 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.19	-0.42	-1.20	64.68	62.30	61.01	54.96	63.39	64.02	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.68	-0.42	-1.20	59.53	40.32	32.54	41.75	47.90	47.93	65 dBA:	**55**	**60**
Heavy Trucks	80.05	-11.46	-0.42	-1.20	66.96	49.97	42.19	51.40	57.56	57.59	60 dBA:	**120**	**129**
				Total:	**69.45**	**62.58**	**61.07**	**56.68**	**64.49**	**65.00**	55 dBA:	**258**	**278**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR WITHOUT PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2				Vehicle Mix 3 (I-5)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	g	Night	Daily
Automobiles	67.10%	12.60%	15.50%	97.00%	69.50%	12.90%	9.60%	92.00%	59.66%	8.14%	22.60%	90.40%
Medium Trucks	1.30%	0.20%	0.50%	2.00%	1.44%	0.06%	1.50%	3.00%	3.59%	0.60%	1.79%	5.98%
Heavy Trucks	0.60%	0.10%	0.30%	1.00%	2.40%	0.10%	2.50%	5.00%	1.85%	0.33%	1.45%	3.62%

Road Name: Euclid Street **Segment: South of West Broadway**

Average Daily Traffic: 29830 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Primary Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.25 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	3.64	-1.63	-1.20	65.91	63.54	62.25	56.19	64.63	65.26	70 dBA:	**36**	**39**
Medium Trucks	74.83	-11.23	-1.63	-1.20	60.77	41.56	33.78	42.98	49.14	49.17	65 dBA:	**78**	**85**
Heavy Trucks	80.05	-9.01	-1.63	-1.20	68.20	51.21	43.43	52.64	58.79	58.83	60 dBA:	**169**	**182**
				Total:	**70.68**	**63.81**	**62.31**	**57.92**	**65.73**	**66.23**	55 dBA:	**363**	**393**

Road Name: West Broadway **Segment: West of Euclid Street**

Average Daily Traffic: 18000 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.73 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	0.86	0.34	-1.20	67.36	64.99	63.70	57.64	66.07	66.70	70 dBA:	**34**	**37**
Medium Trucks	76.31	-14.00	0.34	-1.20	61.45	42.24	34.46	43.67	49.82	49.85	65 dBA:	**74**	**80**
Heavy Trucks	81.16	-11.78	0.34	-1.20	68.51	51.52	43.74	52.95	59.10	59.14	60 dBA:	**160**	**173**
				Total:	**71.44**	**65.20**	**63.74**	**59.04**	**66.95**	**67.48**	55 dBA:	**345**	**374**

Road Name: West Broadway **Segment: East of Euclid Street**

Average Daily Traffic: 17252 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.26	-0.42	-1.20	64.75	62.37	61.08	55.03	63.46	64.09	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.61	-0.42	-1.20	59.60	40.39	32.61	41.82	47.97	48.00	65 dBA:	**56**	**61**
Heavy Trucks	80.05	-11.39	-0.42	-1.20	67.03	50.04	42.26	51.47	57.62	57.66	60 dBA:	**121**	**131**
				Total:	**69.52**	**62.65**	**61.14**	**56.75**	**64.56**	**65.06**	55 dBA:	**260**	**281**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR WITHOUT PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

Road Name: West Broadway **Segment: East of Project Driveway**

Average Daily Traffic: 17252 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.26	-0.42	-1.20	64.75	62.37	61.08	55.03	63.46	64.09	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.61	-0.42	-1.20	59.60	40.39	32.61	41.82	47.97	48.00	65 dBA:	**56**	**61**
Heavy Trucks	80.05	-11.39	-0.42	-1.20	67.03	50.04	42.26	51.47	57.62	57.66	60 dBA:	**121**	**131**
				Total:	**69.52**	**62.65**	**61.14**	**56.75**	**64.56**	**65.06**	55 dBA:	**260**	**281**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR WITH PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2				Vehicle Mix 3 (I-5)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	g	Night	Daily
Automobiles	67.10%	12.60%	15.50%	97.00%	69.50%	12.90%	9.60%	92.00%	59.66%	8.14%	22.60%	90.40%
Medium Trucks	1.30%	0.20%	0.50%	2.00%	1.44%	0.06%	1.50%	3.00%	3.59%	0.60%	1.79%	5.98%
Heavy Trucks	0.60%	0.10%	0.30%	1.00%	2.40%	0.10%	2.50%	5.00%	1.85%	0.33%	1.45%	3.62%

Road Name: Euclid Street **Segment: South of West Broadway**

Average Daily Traffic: 29858 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Primary Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.25 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	3.64	-1.63	-1.20	65.92	63.55	62.25	56.20	64.63	65.26	70 dBA:	**36**	**39**
Medium Trucks	74.83	-11.22	-1.63	-1.20	60.77	41.56	33.78	42.99	49.14	49.18	65 dBA:	**78**	**85**
Heavy Trucks	80.05	-9.01	-1.63	-1.20	68.21	51.22	43.43	52.64	58.80	58.83	60 dBA:	**169**	**182**
				Total:	**70.69**	**63.82**	**62.32**	**57.93**	**65.73**	**66.24**	55 dBA:	**364**	**393**

Road Name: West Broadway **Segment: West of Euclid Street**

Average Daily Traffic: 18028 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.73 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	0.87	0.34	-1.20	67.37	65.00	63.70	57.65	66.08	66.71	70 dBA:	**34**	**37**
Medium Trucks	76.31	-14.00	0.34	-1.20	61.45	42.25	34.46	43.67	49.83	49.86	65 dBA:	**74**	**81**
Heavy Trucks	81.16	-11.78	0.34	-1.20	68.52	51.53	43.75	52.96	59.11	59.14	60 dBA:	**160**	**174**
				Total:	**71.45**	**65.21**	**63.75**	**59.05**	**66.96**	**67.49**	55 dBA:	**345**	**374**

Road Name: West Broadway **Segment: East of Euclid Street**

Average Daily Traffic: 17372 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.29	-0.42	-1.20	64.78	62.40	61.11	55.06	63.49	64.12	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.58	-0.42	-1.20	59.63	40.42	32.64	41.85	48.00	48.03	65 dBA:	**56**	**61**
Heavy Trucks	80.05	-11.36	-0.42	-1.20	67.06	50.07	42.29	51.50	57.66	57.69	60 dBA:	**121**	**131**
				Total:	**69.55**	**62.68**	**61.17**	**56.78**	**64.59**	**65.10**	55 dBA:	**262**	**283**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: OPENING YEAR WITH PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

Road Name: West Broadway **Segment: East of Project Driveway**

Average Daily Traffic: 17317 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.28	-0.42	-1.20	64.76	62.39	61.10	55.04	63.47	64.10	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.59	-0.42	-1.20	59.61	40.41	32.62	41.83	47.99	48.02	65 dBA:	**56**	**61**
Heavy Trucks	80.05	-11.37	-0.42	-1.20	67.05	50.06	42.28	51.49	57.64	57.68	60 dBA:	**121**	**131**
				Total:	**69.53**	**62.66**	**61.16**	**56.77**	**64.58**	**65.08**	55 dBA:	**261**	**282**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: GENERAL PLAN BUILDOUT WITHOUT PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2				Vehicle Mix 3 (I-5)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	g	Night	Daily
Automobiles	67.10%	12.60%	15.50%	97.00%	69.50%	12.90%	9.60%	92.00%	59.66%	8.14%	22.60%	90.40%
Medium Trucks	1.30%	0.20%	0.50%	2.00%	1.44%	0.06%	1.50%	3.00%	3.59%	0.60%	1.79%	5.98%
Heavy Trucks	9.00%	0.10%	0.30%	1.00%	2.40%	0.10%	2.50%	5.00%	1.85%	0.33%	1.45%	3.62%

Road Name: Euclid Street **Segment: South of West Broadway**

Average Daily Traffic: 39980 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Primary Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.25 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	4.91	-1.63	-1.20	67.19	64.81	63.52	57.47	65.90	66.53	70 dBA:	**44**	**48**
Medium Trucks	74.83	-9.96	-1.63	-1.20	62.04	42.83	35.05	44.26	50.41	50.44	65 dBA:	**95**	**103**
Heavy Trucks	80.05	-7.74	-1.63	-1.20	69.47	52.48	44.70	53.91	60.07	60.10	60 dBA:	**205**	**222**
				Total:	**71.96**	**65.09**	**63.58**	**59.19**	**67.00**	**67.51**	55 dBA:	**442**	**477**

Road Name: West Broadway **Segment: West of Euclid Street**

Average Daily Traffic: 19080 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.73 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	1.12	0.34	-1.20	67.61	65.24	63.95	57.89	66.33	66.96	70 dBA:	**36**	**39**
Medium Trucks	76.31	-13.75	0.34	-1.20	61.70	42.49	34.71	43.92	50.07	50.11	65 dBA:	**77**	**84**
Heavy Trucks	81.16	-11.53	0.34	-1.20	68.77	51.78	43.99	53.20	59.36	59.39	60 dBA:	**166**	**180**
				Total:	**71.70**	**65.46**	**64.00**	**59.29**	**67.21**	**67.73**	55 dBA:	**358**	**388**

Road Name: West Broadway **Segment: East of Euclid Street**

Average Daily Traffic: 18700 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.61	-0.42	-1.20	65.10	62.72	61.43	55.38	63.81	64.44	70 dBA:	**27**	**30**
Medium Trucks	74.83	-13.26	-0.42	-1.20	59.95	40.74	32.96	42.17	48.32	48.35	65 dBA:	**59**	**64**
Heavy Trucks	80.05	-11.04	-0.42	-1.20	67.38	50.39	42.61	51.82	57.97	58.01	60 dBA:	**128**	**138**
				Total:	**69.87**	**63.00**	**61.49**	**57.10**	**64.91**	**65.41**	55 dBA:	**275**	**297**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: GENERAL PLAN BUILDOUT WITHOUT PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

Road Name: West Broadway **Segment: East of Project Driveway**

Average Daily Traffic: 18700 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.61	-0.42	-1.20	65.10	62.72	61.43	55.38	63.81	64.44	70 dBA:	**27**	**30**
Medium Trucks	74.83	-13.26	-0.42	-1.20	59.95	40.74	32.96	42.17	48.32	48.35	65 dBA:	**59**	**64**
Heavy Trucks	80.05	-11.04	-0.42	-1.20	67.38	50.39	42.61	51.82	57.97	58.01	60 dBA:	**128**	**138**
				Total:	**69.87**	**63.00**	**61.49**	**57.10**	**64.91**	**65.41**	55 dBA:	**275**	**297**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: GENERAL PLAN BUILDOUT WITH PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2				Vehicle Mix 3 (I-5)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	g	Night	Daily
Automobiles	67.10%	12.60%	15.50%	97.00%	69.50%	12.90%	9.60%	92.00%	59.66%	8.14%	22.60%	90.40%
Medium Trucks	1.30%	0.20%	0.50%	2.00%	1.44%	0.06%	1.50%	3.00%	3.59%	0.60%	1.79%	5.98%
Heavy Trucks	9.00%	0.10%	0.30%	1.00%	2.40%	0.10%	2.50%	5.00%	1.85%	0.33%	1.45%	3.62%

Road Name: Euclid Street **Segment: South of West Broadway**

Average Daily Traffic: 40008 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Primary Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.25 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	4.91	-1.63	-1.20	67.19	64.82	63.52	57.47	65.90	66.53	70 dBA:	**44**	**48**
Medium Trucks	74.83	-9.95	-1.63	-1.20	62.04	42.83	35.05	44.26	50.41	50.45	65 dBA:	**95**	**103**
Heavy Trucks	80.05	-7.73	-1.63	-1.20	69.48	52.49	44.71	53.91	60.07	60.10	60 dBA:	**205**	**222**
				Total:	**71.96**	**65.09**	**63.59**	**59.20**	**67.00**	**67.51**	55 dBA:	**442**	**478**

Road Name: West Broadway **Segment: West of Euclid Street**

Average Daily Traffic: 19108 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.73 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	1.12	0.34	-1.20	67.62	65.25	63.96	57.90	66.33	66.96	70 dBA:	**36**	**39**
Medium Trucks	76.31	-13.74	0.34	-1.20	61.71	42.50	34.72	43.93	50.08	50.11	65 dBA:	**77**	**84**
Heavy Trucks	81.16	-11.52	0.34	-1.20	68.77	51.78	44.00	53.21	59.36	59.40	60 dBA:	**166**	**180**
				Total:	**71.70**	**65.46**	**64.00**	**59.30**	**67.21**	**67.74**	55 dBA:	**359**	**389**

Road Name: West Broadway **Segment: East of Euclid Street**

Average Daily Traffic: 18820 Vehicles Vehicle Speed: 35 MPH Vehicle Mix: 2 Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.64	-0.42	-1.20	65.12	62.75	61.46	55.40	63.84	64.47	70 dBA:	**28**	**30**
Medium Trucks	74.83	-13.23	-0.42	-1.20	59.98	40.77	32.99	42.19	48.35	48.38	65 dBA:	**59**	**64**
Heavy Trucks	80.05	-11.01	-0.42	-1.20	67.41	50.42	42.64	51.85	58.00	58.04	60 dBA:	**128**	**138**
				Total:	**69.89**	**63.02**	**61.52**	**57.13**	**64.94**	**65.44**	55 dBA:	**276**	**298**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: GENERAL PLAN BUILDOUT WITH PROJECT CONDITIONS

Project: West Broadway Townhomes
Site Conditions: Soft

Road Name: West Broadway **Segment: East of Project Driveway**

Average Daily Traffic: 18765 Vehicles | Vehicle Speed: 35 MPH | Vehicle Mix: 2 | Roadway Classification: Secondary Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 52.53 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	65.11	1.63	-0.42	-1.20	65.11	62.74	61.45	55.39	63.82	64.45	70 dBA:	**28**	**30**
Medium Trucks	74.83	-13.24	-0.42	-1.20	59.96	40.75	32.97	42.18	48.33	48.37	65 dBA:	**59**	**64**
Heavy Trucks	80.05	-11.02	-0.42	-1.20	67.40	50.41	42.63	51.84	57.99	58.02	60 dBA:	**128**	**138**
				Total:	**69.88**	**63.01**	**61.51**	**57.12**	**64.93**	**65.43**	55 dBA:	**275**	**297**

APPENDIX E

FHWA Model Onsite Traffic Noise Calculation Printouts

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: West Broadway | Project Name: W Broadway Townhomes
Building: Building 1-1 | Job Number: 21095

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	18,820	vehicles
Peak Hour Volume:	1,882	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	58	feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	75.8%	12.4%	9.4%	97.5%
Medium Trucks:	1.6%	0.1%	0.1%	1.8%
Heavy Trucks:	0.6%	0.0%	0.1%	0.7%

Site Data

Barrier Height:	**3.0**	**feet**
Barrier Type(Wall/Berm):	Wall	
Site Conditions(Hard/Soft):	Soft	
Centerline (C.L.) Dist. to Barrier:	55	feet
C.L. Dist. To Observer (Backyard):	60	feet
Barrier Dist. To Observer (Backyard):	5	feet
C.L. Dist. To Observer (Structure):	65	feet
Barrier Dist. To Observer (Structure):	10	feet
Road Grade:	0.00	%
Left View:	-90	degrees
Right View:	90	degrees

Elevations

Barrier Base Elevation:	129.6	feet
Road Elevation:	126.5	feet
Noise Source Elevation above Road		
Autos:	0	feet
Med Trucks:	2.3	feet
Hvy Trucks:	8	feet
Pad Elevation:	129.1	feet
Observer Heights Above Pad Elevation		
Exterior:	5	feet
First Floor:	5.5	feet
Second Floor:	14	feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	65.11	1.64	-0.49	-1.20	0.00	-2.5	-4.1	0
Med Trucks:	74.83	-13.23	-0.49	-1.20	0.00	-0.95	-2.1	0
Hvy Trucks:	80.05	-11.01	-0.49	-1.20	0.00	-0.4	-0.42	0

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	62.7	61.4	55.3	63.8	64.4
Med Trucks:	59.9	40.7	32.9	42.1	48.3	48.3
Hvy Trucks:	67.3	50.4	42.6	51.8	57.9	58.0
Traffic Noise:	**69.8**	**63.0**	**61.5**	**57.1**	**64.9**	**65.4**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.2	58.9	52.8	61.3	61.9
Med Trucks:	59.0	39.7	32.0	41.2	47.3	47.4
Hvy Trucks:	66.9	50.0	42.2	51.4	57.5	57.6
Traffic Noise:	**68.8**	**60.6**	**59.0**	**55.3**	**62.9**	**63.4**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.5	57.9	56.6	50.6	59.0	59.6
Med Trucks:	54.9	37.9	30.2	39.4	45.5	45.6
Hvy Trucks:	57.7	49.3	41.5	50.7	56.9	56.9
Traffic Noise:	**63.1**	**58.5**	**56.8**	**53.8**	**61.2**	**61.6**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	61.8	60.5	54.5	62.9	63.5
Med Trucks:	56.8	39.8	32.1	41.3	47.4	47.4
Hvy Trucks:	57.9	49.5	41.7	50.9	57.1	57.1
Traffic Noise:	**65.9**	**62.1**	**60.6**	**56.2**	**64.0**	**64.5**

MITIGATED NOISE LEVELS (Third Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	61.5	60.2	54.1	62.6	63.2
Med Trucks:	56.5	39.5	31.7	40.9	47.1	47.1
Hvy Trucks:	57.6	49.2	41.4	50.6	56.7	56.8
Traffic Noise:	**65.6**	**61.8**	**60.3**	**55.9**	**63.7**	**64.2**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: West Broadway | Project Name: W Broadway Townhomes
Building: Building 1-4 | Job Number: 21095

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	18,820	vehicles
Peak Hour Volume:	1,882	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	58	feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	75.8%	12.4%	9.4%	97.5%
Medium Trucks:	1.6%	0.1%	0.1%	1.8%
Heavy Trucks:	0.6%	0.0%	0.1%	0.7%

Site Data

Barrier Height:	**3.0**	**feet**
Barrier Type(Wall/Berm):	Wall	
Site Conditions(Hard/Soft):	Soft	
Centerline (C.L.) Dist. to Barrier:	55	feet
C.L. Dist. To Observer (Backyard):	60	feet
Barrier Dist. To Observer (Backyard):	5	feet
C.L. Dist. To Observer (Structure):	65	feet
Barrier Dist. To Observer (Structure):	10	feet
Road Grade:	0.00	%
Left View:	-90	degrees
Right View:	90	degrees

Elevations

Barrier Base Elevation:	129.1	feet
Road Elevation:	126.8	feet
Noise Source Elevation above Road		
Autos:	0	feet
Med Trucks:	2.3	feet
Hvy Trucks:	8	feet
Pad Elevation:	129.1	feet
Observer Heights Above Pad Elevation		
Exterior:	5	feet
First Floor:	5.5	feet
Second Floor:	14	feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	65.11	1.64	-0.49	-1.20	0.00	-0.72	-1.75	0
Med Trucks:	74.83	-13.23	-0.49	-1.20	0.00	-0.4	-0.7	0
Hvy Trucks:	80.05	-11.01	-0.49	-1.20	0.00	-0.188	-0.26	0

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	62.7	61.4	55.3	63.8	64.4
Med Trucks:	59.9	40.7	32.9	42.1	48.3	48.3
Hvy Trucks:	67.3	50.4	42.6	51.8	57.9	58.0
Traffic Noise:	**69.8**	**63.0**	**61.5**	**57.1**	**64.9**	**65.4**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	62.0	60.7	54.6	63.1	63.7
Med Trucks:	59.5	40.3	32.5	41.7	47.9	47.9
Hvy Trucks:	67.2	50.2	42.4	51.6	57.8	57.8
Traffic Noise:	**69.5**	**62.3**	**60.7**	**56.5**	**64.3**	**64.8**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	60.3	59.0	52.9	61.4	62.0
Med Trucks:	56.3	39.3	31.6	40.8	46.9	47.0
Hvy Trucks:	57.9	49.4	41.7	50.9	57.0	57.1
Traffic Noise:	**64.8**	**60.7**	**59.1**	**55.2**	**62.8**	**63.3**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	61.8	60.5	54.5	62.9	63.5
Med Trucks:	56.8	39.8	32.1	41.3	47.4	47.5
Hvy Trucks:	57.9	49.5	41.7	50.9	57.1	57.1
Traffic Noise:	**65.9**	**62.1**	**60.6**	**56.2**	**64.0**	**64.5**

MITIGATED NOISE LEVELS (Third Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	61.5	60.2	54.2	62.6	63.2
Med Trucks:	56.5	39.5	31.7	40.9	47.1	47.1
Hvy Trucks:	57.6	49.2	41.4	50.6	56.8	56.8
Traffic Noise:	**65.6**	**61.8**	**60.3**	**55.9**	**63.7**	**64.2**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Road Name: West Broadway | Project Name: W Broadway Townhomes
Building: Building 1-6 | Job Number: 21095

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	18,820	vehicles
Peak Hour Volume:	1,882	vehicles
Vehicle Speed:	35	mph
Near/Far Lane Distance:	58	feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	75.8%	12.4%	9.4%	97.5%
Medium Trucks:	1.6%	0.1%	0.1%	1.8%
Heavy Trucks:	0.6%	0.0%	0.1%	0.7%

Site Data

Barrier Height:	**3.0**	**feet**
Barrier Type(Wall/Berm):	Wall	
Site Conditions(Hard/Soft):	Soft	
Centerline (C.L.) Dist. to Barrier:	55	feet
C.L. Dist. To Observer (Backyard):	60	feet
Barrier Dist. To Observer (Backyard):	5	feet
C.L. Dist. To Observer (Structure):	65	feet
Barrier Dist. To Observer (Structure):	10	feet
Road Grade:	0.00	%
Left View:	-90	degrees
Right View:	90	degrees

Elevations

Barrier Base Elevation:	129.1	feet
Road Elevation:	127.0	feet
Noise Source Elevation above Road		
Autos:	0	feet
Med Trucks:	2.3	feet
Hvy Trucks:	8	feet
Pad Elevation:	129.1	feet
Observer Heights Above Pad Elevation		
Exterior:	5	feet
First Floor:	5.5	feet
Second Floor:	14	feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	65.11	1.64	-0.48	-1.20	0.00	-0.7	-1.4	0
Med Trucks:	74.83	-13.23	-0.48	-1.20	0.00	-0.4	-0.68	0
Hvy Trucks:	80.05	-11.01	-0.48	-1.20	0.00	-0.186	-0.24	0

UNMITIGATED NOISE LEVELS (No sound walls)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.1	62.7	61.4	55.3	63.8	64.4
Med Trucks:	59.9	40.7	32.9	42.1	48.3	48.3
Hvy Trucks:	67.4	50.4	42.6	51.8	57.9	58.0
Traffic Noise:	**69.8**	**63.0**	**61.5**	**57.1**	**64.9**	**65.4**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	62.0	60.7	54.6	63.1	63.7
Med Trucks:	59.5	40.3	32.5	41.7	47.9	47.9
Hvy Trucks:	67.2	50.2	42.4	51.6	57.8	57.8
Traffic Noise:	**69.5**	**62.3**	**60.8**	**56.5**	**64.3**	**64.8**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.3	60.6	59.3	53.3	61.7	62.3
Med Trucks:	56.4	39.4	31.6	40.8	46.9	47.0
Hvy Trucks:	57.9	49.5	41.7	50.9	57.0	57.1
Traffic Noise:	**65.0**	**61.0**	**59.4**	**55.4**	**63.1**	**63.6**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.5	61.8	60.5	54.5	62.9	63.5
Med Trucks:	56.8	39.8	32.1	41.3	47.4	47.5
Hvy Trucks:	58.0	49.5	41.7	50.9	57.1	57.1
Traffic Noise:	**65.9**	**62.1**	**60.6**	**56.2**	**64.0**	**64.5**

MITIGATED NOISE LEVELS (Third Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	61.5	60.2	54.2	62.6	63.2
Med Trucks:	56.5	39.5	31.7	41.0	47.1	47.1
Hvy Trucks:	57.6	49.2	41.4	50.6	56.8	56.8
Traffic Noise:	**65.6**	**61.8**	**60.3**	**55.9**	**63.7**	**64.2**