AIR QUALITY TECHNICAL REPORT

Introduction

This technical report addresses the air quality impacts generated by construction and operation of the Proposed 21611 Perry Street Project in the City of Carson. The analysis evaluates the consistency of the Project with air quality policies set forth in the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP) and the City's General Plan. The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold. Calculation worksheets, assumptions, and model outputs used in the analysis are included in the Technical Appendix to this analysis.

Regulatory Framework

Federal

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years, with the most recent amendments in 1990. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementation of some portions of the CAA (e.g., certain mobile source and other requirements). Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies. In California, the California Clean Air Act (CCAA) is administered by the California Air Resources Board (CARB) at the State level and by the air quality management districts and air pollution control districts at the regional and local levels.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the National Ambient Air Quality Standard (NAAQS). These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA which are most applicable to the Project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

NAAQS have been established for seven major air pollutants: CO (carbon monoxide), NO_2 (nitrogen dioxide), O_3 (ozone), $PM_{2.5}$ (particulate matter, 2.5 microns), PM_{10} (particulate matter, 10 microns), SO_2 (sulfur dioxide), and Pb (lead).

The CAA requires the USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. Title I provisions are implemented for the purpose of attaining NAAQS. The federal standards are summarized in Table 1. The USEPA has classified the Los Angeles County portion of the South Coast Air Basin (Basin) as a nonattainment area for O_3, $PM_{2.5}$, and Pb.

Table 1
State and National Ambient Air Quality Standards and Attainment Status for LA County

Pollutant	Averaging Period	California		Federal	
		Standards	Attainment Status	Standards	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	Non-attainment	--	--
	8-hour	0.070 ppm (137 µg/m^3)	N/A[1]	0.070 ppm (137 µg/m^3)	Non-attainment
Respirable Particulate Matter (PM_{10})	24-hour	50 µg/m^3	Non-attainment	150 µg/m^3	Maintenance
	Annual Arithmetic Mean	20 µg/m^3	Non-attainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	--	35 µg/m^3	Non-attainment
	Annual Arithmetic Mean	12 µg/m^3	Non-attainment	12 µg/m^3	Non-attainment
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Maintenance
	8-hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Maintenance
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm (338 µg/m^3)	Attainment	100 ppb (188 µg/m^3)	Maintenance
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Attainment	53 ppb (100 µg/m^3)	Maintenance
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm (655 µg/m^3)	Attainment	75 ppb (196 µg/m^3)	Attainment
	24-hour	0.04 ppm (105 µg/m^3)	Attainment	--	--
Lead (Pb)	30-day average	1.5 µg/m^3	Attainment	--	--
	Calendar Quarter	--	--	0.15 µg/m^3	Non-attainment
Visibility Reducing Particles	8-hour	Extinction of 0.07 per kilometer	N/A	No Federal Standards	
Sulfates	24-hour	25 µg/m^3	Attainment	No Federal Standards	
Hydrogen Sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m^3)	Unclassified	No Federal Standards	
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	N/A	No Federal Standards	

N/A = not available
ppm = parts per million; µg/m^3 – micrograms per cubic meter; mg/m^3 – milligrams per cubic meter
Source: USEPA, NAAQS Table (https://www.epa.gov/criteria-air-pollutants/naaqs-table) and CARB, California Ambient Air Quality Standards (https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards). Attainment status data from CARB, Ambient Air Quality Standards, and attainment status (www.arb.ca.gov/desig/adm/adm.htm).

CAA Title II pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline and automobile pollution control devices are examples of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have been strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have been lowered substantially and the specification requirements for cleaner burning gasoline are more stringent.

The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. USEPA has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet stricter emission standards established by CARB. USEPA adopted multiple tiers of emission standards to reduce emissions from non-road diesel engines (e.g., diesel-powered construction equipment) by integrating engine and fuel controls as a system to gain the greatest emission reductions. The first federal standards (Tier 1) for new non-road (or off-road) diesel engines were adopted in 1994 for engines over 50 horsepower, to be phased-in from 1996 to 2000. On August 27, 1998, USEPA introduced Tier 1 standards for equipment under 37 kW (50 horsepower) and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. The Tier 1 through 3 standards were met through advanced engine design, with no or only limited use of exhaust gas after-treatment (oxidation catalysts). Tier 3 standards for NO_X and hydrocarbon are similar in stringency to the 2004 standards for highway engines. However, Tier 3 standards for particulate matter were never adopted. On May 11, 2004, USEPA signed the final rule introducing Tier 4 emission standards, which were phased-in between 2008 and 2015. The Tier 4 standards require that emissions of particulate matter and NO_X be further reduced by about 90 percent. Such emission reductions are achieved through the use of control technologies—including advanced exhaust gas after-treatment.

State

California Clean Air Act. In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the CCAA. In California, CCAA is administered by CARB at the state level and by the air quality management districts and air pollution control districts at the regional and local levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the state requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

CARB regulates mobile air pollution sources, such as motor vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications in March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The State standards are summarized in Table 1.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS thresholds have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for

the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the non-desert Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$.

In August 2022, CARB approved regulations to ban new gasoline-powered cars beginning with 2035 models. Automakers will gradually electrify their fleet of new vehicles, beginning with 35 percent of 2026 models sold. In March 2023, USEPA approved CARB's regulations that mandate that all new medium- and heavy-duty trucks would be zero emissions by 2045 where feasible. Trucking companies would also have to gradually convert their existing fleets to zero emission vehicles.

CARB has further required that all small (25 horsepower and below) off-road engines that are spark-ignited (e.g., lawn and gardening equipment) must be zero emission starting in model year 2024. Standards for portable generators and large pressure washers were given until model year 2028 to be electric-powered.

Toxic Air Contaminant Identification and Control Act. The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. CARB's statewide comprehensive air toxics program was established in the early 1980s. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community" [Health and Safety Code Section 39666(f)].

The Toxic Air Contaminant Identification and Control Act also requires CARB to use available information gathered from the Air Toxics "Hot Spots" Information and Assessment Act program to include in the prioritization of compounds. CARB identified particulate emissions from diesel-fueled engines (diesel PM) TACs in August 1998. Following the identification process, CARB was required by law to determine if there is a need for further control, which led to the risk management phase of the program. For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Diesel Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. CARB approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase. During the control measure phase, specific Statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. Breathing H_2S at levels above the State standard could result in exposure to a disagreeable rotten eggs odor. The State does not regulate other odors.

California Air Toxics Program. The California Air Toxics Program was established in 1983, when the California Legislature adopted Assembly Bill (AB) 1807 to establish a two-step process of risk identification and risk management to address potential health effects from exposure to toxic substances

in the air.[1] In the risk identification step, CARB and the Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified, or "listed," as a TAC in California. Since inception of the program, a number of such substances have been listed, including benzene, chloroform, formaldehyde, and particulate emissions from diesel-fueled engines, among others.[2] In 1993, the California Legislature amended the program to identify the 189 federal hazardous air pollutants as TACs.

In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce risk. Based on results of that review, CARB has promulgated a number of airborne toxic control measures (ATCMs), both for mobile and stationary sources. In 2004, CARB adopted an ATCM to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel PM and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given time.

In addition to limiting exhaust from idling trucks, CARB adopted regulations on July 26, 2007 for off-road diesel construction equipment such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles to reduce emissions by installation of diesel particulate filters and encouraging the replacement of older, dirtier engines with newer emission-controlled models. In April 2021, CARB proposed a 2020 Mobile Source Strategy that seeks to move California to 100 percent zero-emission off-road equipment by 2035.

Assembly Bill 2588 Air Toxics "Hot Spots" Program. The AB 1807 program is supplemented by the AB 2588 Air Toxics "Hot Spots" program, which was established by the California Legislature in 1987. Under this program, facilities are required to report their air toxics emissions, assess health risks, and notify nearby residents and workers of significant risks if present. In 1992, the AB 2588 program was amended by Senate Bill (SB) 1731 to require facilities that pose a significant health risk to the community to reduce their risk through implementation of a risk management plan.

Air Quality and Land Use Handbook: A Community Health Perspective. The *Air Quality and Land Use Handbook: A Community Health Perspective* provides important air quality information about certain types of facilities (e.g., freeways, refineries, rail yards, ports) that should be considered when siting sensitive land uses such as residences.[3] CARB provides recommended site distances from certain types of facilities when considering siting new sensitive land uses. The recommendations are advisory and should not be interpreted as defined "buffer zones." If a project is within the siting distance, CARB recommends further analysis.

Where possible, CARB recommends a minimum separation between new sensitive land uses and existing sources. Some examples of CARB's siting recommendations include the following: (1) avoid

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1 California Air Resources Board, California Air Toxics Program, https://ww2.arb.ca.gov/our-work/programs/air-toxics-program, last reviewed by CARB September 24, 2015.

2 California Air Resources Board, Toxic Air Contaminant Identification List, https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants.

3 California Air Resources Board, Air Quality and Land Use Handbook, a Community Health Perspective, April 2005.

siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); and (3) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene and within 500 feet of operations with two or more machines.

California Code of Regulations. The California Code of Regulations (CCR) is the official compilation and publication of regulations adopted, amended or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, Section 2485 in CCR Title 13 states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) used during construction shall be limited to five minutes at any location. In addition, Section 93115 in CCR Title 17 states that operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

Applicable requirements for the Proposed Project would include Section 2485 in Title 13 of the CCR, where the idling of all diesel-fueled commercial vehicles (with gross vehicle weight over 10,000 pounds) during construction would be limited to five minutes at any location. Pursuant to Section 93115 in Title 17 of the CCR, operation of any stationary, diesel-fueled, compression-ignition engines would meet specific fuel and fuel additive requirements and emissions standards.

Regional (South Coast Air Quality Management District)

The SCAQMD was created in 1977 to coordinate air quality planning efforts throughout Southern California. SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain the CAAQS and NAAQS in the district. SCAQMD has jurisdiction over an area of 10,743 square miles consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin portion of SCAQMD's jurisdiction covers an area of 6,745 square miles. The Basin includes all of Orange County and the non-desert portions of Los Angeles (including the Project Area), Riverside, and San Bernardino counties.

Programs that were developed by SCAQMD to attain and maintain the CAAQS and NAAQS include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases. However, SCAQMD has primary authority over about 20 percent of NO_x emissions, a precursor to ozone formation. All projects in the SCAQMD jurisdiction are subject to SCAQMD rules and regulations, including, but not limited to the following:

- Rule 401 (Visible Emissions): This rule prohibits air discharge that results in a plume that is as dark as or darker than what is designed as No. 1 Ringelmann Chart by the United States Bureau of Mines for an aggregate of three minutes in any one hour.

- Rule 402 (Nuisance): This rule prohibits the discharge of "such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of people or 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."

- Rule 403 (Fugitive Dust): This rule mandates that projects reduce the amount of particulate matter entrained in the ambient air as a result of fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions from any active operation, open storage pile, or disturbed surface area.

- Rule 431.2 (Sulfur Content of Liquid Fuels): This rule would require use of low-sulfur fuel in construction equipment.

- Rule 445 (Wood Burning Devices: This would prohibit the inclusion of wood burning fireplaces in any residences.

- Rule 1113 Architectural Coatings: This rule limits the volatile organic compound (VOC) content of architectural coatings.

Air Quality Management Plan. SCAQMD adopted the 2022 Air Quality Management Plan (AQMP) on December 2, 2022, updating the region's air quality attainment plan to address the "extreme" ozone non-attainment status for the Basin and the severe ozone non-attainment for the Coachella Valley Basin by laying a path for attainment by 2037. This includes reducing NO_x emissions by 67 percent more than required by adopted rules and regulations in 2037. The AQMP calls on strengthening many stationary source controls and addressing new sources like wildfires, but still concludes that the region will not meet air quality standards without a significant shift to zero emission technologies and significant federal action. The 2022 AQMP relies on the growth assumptions in the Southern California Association of Governments' (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

Multiple Air Toxics Exposure Study V. To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study V, released in August 2021.[4] The report included refinements in aircraft and recreational boating emissions and diesel conversion factors. It finds a Basin average cancer risk of 455 in a million (population-weighted, multi-pathway), which represents a decrease of 54 percent compared to the estimate in MATES IV. The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by computer modeling that estimated the risk of cancer from breathing toxic air pollution based on emissions and weather data. About 88 percent of the risk is attributed to emissions associated with mobile sources, with the remainder attributed to toxics emitted from stationary sources, which include large industrial operations, such as refineries and metal processing facilities, as well as smaller businesses such as gas stations and chrome plating facilities. The results indicate that diesel PM is the largest contributor to air toxics risk, accounting on average for about 50 percent of the total risk.

[4] South Coast Air Quality Management District, MATES-V Study. https://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v

Regional (Southern California Association of Governments)

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 coordinates with air quality and transportation stakeholders in Southern California to ensure compliance with federal and state air quality requirements, including the Transportation Conformity Rule and other applicable federal, state, and air district laws and regulations. As the federally designated Metropolitan Planning Organization (MPO) for the six-county Southern California region, SCAG is required by law to ensure that transportation activities "conform" to, and are supportive of, the goals of regional and state air quality plans to attain the NAAQS. In addition, SCAG is a co-producer, with the SCAQMD, of the transportation strategy and transportation control measure sections of the AQMP for the Air Basin.

SCAG adopted the 2020-2045 RTP/SCS on September 23, 2020. The RTP/SCS addresses the transportation and air quality impacts of 3.7 million additional residents, 1.6 additional households, and 1.6 million additional jobs from 2016 to 2045. The Plan calls for $639 billion in transportation investments and reducing vehicle miles traveled (VMT) by 19 percent per capita from 2005 to 2035. The updated plan accommodates 21.3 percent growth in population from 2016 (3,933,800) to 2045 (4,771,300) and a 15.6 percent growth in jobs from 2016 (1,848,300) to 2045 (2,135,900). The regional plan projects several benefits:

- Decreasing drive-along work commutes by three percent
- Reducing per capita VMT by five percent and vehicle hours traveled per capita by nine percent
- Increasing transit commuting by two percent
- Reducing travel delay per capita by 26 percent
- Creating 264,500 new jobs annually
- Reducing greenfield development by 29 percent by focusing on smart growth
- Locating six more percent household growth in High Quality Transit Areas (HQTAs), which concentrate roadway repair investments, leverage transit and active transportation investments, reduce regional life cycle infrastructure costs, improve accessibility, create local jobs, and have the potential to improve public health and housing affordability.
- Locating 15 percent more jobs in HQTAs
- Reducing $PM_{2.5}$ emissions by 4.1 percent
- Reducing greenhouse gas (GHG) emissions by 19 percent by 2035

SCAG adopted the 2024-2050 RTP/SCS on April 4, 2024. The RTP/SCS addresses the transportation and air quality impacts of two million additional residents, 1.6 additional households, and 1.3 million additional jobs by 2050. The Plan calls for $751.7 billion in transportation investments and reducing vehicle miles traveled (VMT) and is the latest long-range plan, continuing to recognize that transportation investments and future land use patterns are inextricably linked, and acknowledging how this relationship can help the region make choices that sustain existing resources while expanding efficiency, mobility, and accessibility for people across the region. The 2024-2050 RTP/SCS offers a blueprint for how Southern California can grow more sustainably. To this end, the 2024-2050 RTP/SCS land use pattern continues the trend of focusing 66 percent of new households and 54 percent of new jobs in Priority Development Areas and the region's High Quality Transit Corridors (HQTCs) and aims to enhance and build out the region's transit network. HQTCs are a cornerstone of land use planning best practice in the SCAG region, and studies have found that focusing development in areas served by

transit can result in local, regional, and statewide benefits including reduced air pollution and energy consumption.

Local (City of Carson)

City of Carson General Plan. The Open Space and Environmental Conservation Element of the City's General Plan was adopted on April 4, 2023, and sets forth the goals, objectives, and policies, which guide the City in the implementation of air quality improvement programs and strategies. The Open Space and Environmental Conservation Element acknowledges the interrelationships among transportation and land use planning in meeting the City's mobility and air quality goals.

The Open Space and Environmental Conservation Element includes six key policies:

Policy OSEC-G-17: Support regional efforts to reduce pollution from significant sources that negatively affect the City, such as port and truck pollution from the ports of Los Angeles and Long Beach.

Policy OSEC-G-18: Continue to work with South Coast Air Quality Management District (SCAQMD) to reduce generation of air pollutants, improve air quality, and meet all national and State ambient air quality standards.

Policy OSEC-G-19: Seek to reduce mobile sources of air pollution by creating denser and walkable neighborhoods, promoting transit-oriented development, and improving bicycle infrastructure, with the goal to reduce the number of miles traveled in cars and improve regional air quality.

Policy OSEC-G-20: Seek to reduce air quality impacts of industrial and commercial uses, like oil refineries and trucking, for both mobile and stationary sources of pollution.

Policy OSEC-G-21: Lessen exposure of sensitive uses to pollutants emitted by mobile sources by buffering freeways, major arterials, and truck routes with trees and vegetation.

Policy OSEC-G-22: Promote clean and alternative fuel combustion in City-owned mobile equipment and vehicles.

In addition, the Community Health and Environmental Justice Element of the General Plan includes additional policies that directly promote cleaner air:

Policy CHE-G-2: Reduce air pollution and the incidence of respiratory illness through the land use planning process.

Policy CHE-G-3: Proactively coordinate City air quality improvement activities with the South Coast Air Quality Management District and other regional programs, as well as with neighboring communities.

Policy CHE-G-4: Protect community health from pollution by toxics and hazardous materials, especially in areas with vulnerable or sensitive populations.

Policy CHE-P-5: Continue to enforce zoning and design standards that protect sensitive uses from the encroachment of land uses that would result in impacts from noxious fumes or toxins.

Policy CHE-G-6: Collaborate with South Coast Air Quality Management District (SCAQMD) to coordinate policies that reduce air pollution from local sources and implement programs that leverage funding from Senate Bill (SB) 535, Assembly Bill (AB) 1550, AB 617, and other sources to improve air quality and public health.

Policy CHE-G-8: Avoid new toxin sources by stringently evaluating the siting of facilities that might significantly increase pollution, especially near already disproportionately impacted communities.

California Environmental Quality Act. In accordance with CEQA requirements, 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. The City uses the SCAQMD's *CEQA Air Quality Handbook* and SCAQMD's supplemental online guidance/information for the environmental review of development proposals within its jurisdiction.

Existing Conditions

Pollutants and Effects

Air quality is defined by ambient air concentrations of seven specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. These specific pollutants, known as "criteria air pollutants," are defined as pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include carbon monoxide (CO), ground-level ozone (O_3), nitrogen oxides (NO_X), sulfur oxides (SO_X), particulate matter ten microns or less in diameter (PM_{10}), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), and lead (Pb). The following descriptions of each criteria air pollutant and their health effects are based on information provided by the SCAQMD.[5]

Carbon Monoxide (CO). CO is primarily emitted from combustion processes and motor vehicles due to incomplete combustion of fuel. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. It is especially dangerous for people with chronic heart disease. Inhalation of CO can cause nausea, dizziness, and headaches at moderate concentrations and can be fatal at high concentrations.

Ozone (O_3). O_3 is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X)—both byproducts of internal combustion engine exhaust—undergo slow photochemical reactions in the presence of sunlight. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable. An elevated level of O_3 irritates the lungs and breathing passages, causing coughing and pain in the chest and throat, thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more

[5] South Coast Air Quality Management District, Final Program Environmental Impact Report for the 2012 AQMP, December 7, 2012.

severe in people with asthma and other respiratory ailments. Long-term exposure may lead to scarring of lung tissue and may lower lung efficiency.

Nitrogen Dioxide (NO_2). NO_2 is a byproduct of fuel combustion and major sources include power plants, large industrial facilities, and motor vehicles. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), which reacts quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 absorbs blue light and results in a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10}. Nitrogen oxides irritate the nose and throat, and increase one's susceptibility to respiratory infections, especially in people with asthma. The principal concern of NO_X is as a precursor to the formation of ozone.

Sulfur Dioxide (SO_2). Sulfur oxides (SO_X) are compounds of sulfur and oxygen molecules. SO_2 is the pre- dominant form found in the lower atmosphere and is a product of burning sulfur or burning materials that contain sulfur. Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of sulfur dioxide aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. High levels of particulates appear to worsen the effect of sulfur dioxide, and long-term exposures to both pollutants leads to higher rates of respiratory illness.

Particulate Matter (PM_{10} and $PM_{2.5}$). The human body naturally prevents the entry of larger particles into the body. However, small particles, with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), and even smaller particles with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$), can enter the body and become trapped in the nose, throat, and upper respiratory tract. These small particulates can potentially aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM_{10} and $PM_{2.5}$. Lung impairment can persist for two to three weeks after exposure to high levels of particulate matter. Some types of particulates can become toxic after inhalation due to the presence of certain chemicals and their reaction with internal body fluids.

Lead (Pb). Lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing the metal is the primary source of lead emissions, which is primarily a regional pollutant. Lead affects the brain and other parts of the body's nervous system. Exposure to lead in very young children impairs the development of the nervous system, kidneys, and blood forming processes in the body.

State-Only Criteria Pollutants

Visibility-Reducing Particles. Deterioration of visibility is one of the most obvious manifestations of air pollution and plays a major role in the public's perception of air quality. Visibility reduction from air pollution is often due to the presence of sulfur and NO_X, as well as PM.

Sulfates (SO_4^{2-}). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized during the combustion process and subsequently converted to sulfate compounds in the

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

Hydrogen Sulfide (H_2S). H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the state standard could result in exposure to a very disagreeable odor.

Vinyl Chloride. Vinyl chloride is a colorless, flammable gas at ambient temperature and pressure. It is also highly toxic and is classified as a known carcinogen by the American Conference of Governmental Industrial Hygienists and the International Agency for Research on Cancer. At room temperature, vinyl chloride is a gas with a sickly-sweet odor that is easily condensed. However, it is stored at cooler temperatures as a liquid. Due to the hazardous nature of vinyl chloride to human health, there are no end products that use vinyl chloride in its monomer form. Vinyl chloride is a chemical intermediate, not a final product. It is an important industrial chemical chiefly used to produce polyvinyl chloride (PVC). The process involves vinyl chloride liquid fed to polymerization reactors where it is converted from a monomer to a polymer PVC. The final product of the polymerization process is PVC in either a flake or pellet form. Billions of pounds of PVC are sold on the global market each year. From its flake or pellet form, PVC is sold to companies that heat and mold the PVC into end products such as PVC pipe and bottles. Vinyl chloride emissions are historically associated primarily with landfills.

Toxic Air Contaminants (TACs)

TACs refer to a diverse group of “non-criteria” air pollutants that can affect human health but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above but because their effects tend to be local rather than regional. TACs are classified as carcinogenic and noncarcinogenic, where carcinogenic TACs can cause cancer and noncarcinogenic TAC can cause acute and chronic impacts to different target organ systems (e.g., eyes, respiratory, reproductive, developmental, nervous, and cardiovascular). CARB and OEHHA determine if a substance should be formally identified, or “listed,” as a TAC in California. A complete list of these substances is maintained on CARB’s website.[6]

Diesel particulate matter (DPM), which is emitted in the exhaust from diesel engines, was listed by the state as a TAC in 1998. DPM has historically been used as a surrogate measure of exposure for all diesel exhaust emissions. DPM consists of fine particles (diameter less than 2.5 micrometer (μm)), including a subgroup of ultrafine particles (diameter less than 0.1 μm). Collectively, these particles have a large surface area which makes them an excellent medium for absorbing organics. The visible emissions in diesel exhaust include carbon particles or “soot.” Diesel exhaust also contains a variety of harmful gases and cancer-causing substances.

Exposure to DPM may be a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. DPM levels and resultant potential health

[6] California Air Resources Board, Toxic Air Contaminant Identification List, https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants.

effects may be higher in close proximity to heavily traveled roadways with substantial truck traffic or near industrial facilities. According to CARB, DPM exposure may lead to the following adverse health effects: (1) aggravated asthma; (2) chronic bronchitis; (3) increased respiratory and cardiovascular hospitalizations; (4) decreased lung function in children; (5) lung cancer; and (6) premature deaths for people with heart or lung disease.[7,8]

Project Site

The Project Site is located within the South Coast Air Basin (the Basin); named so because of its geographical formation is that of a basin, with the surrounding mountains trapping the air and its pollutants in the valleys or basins below. The 6,745-square-mile Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. It is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east; and the San Diego County line to the south. Ambient pollution concentrations recorded in Los Angeles County portion of the Basin are among the highest in the four counties comprising the Basin. USEPA has classified Los Angeles County as nonattainment areas for O_3, $PM_{2.5}$, and lead. This classification denotes that the Basin does not meet the NAAQS for these pollutants. In addition, under the CCAA, the Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The air quality within the Basin is primarily influenced by a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, industry, and meteorology.

Air pollutant emissions are generated in the local vicinity by stationary and area-wide sources, such as commercial activity, space and water heating, landscaping maintenance, consumer products, and mobile sources primarily consisting of automobile traffic.

Air Pollution Climatology. The topography and climate of Southern California combine to make the Basin an area of high air pollution potential. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cooler surface layer which inhibits the pollutants from dispersing upward. Light winds during the summer further limit ventilation. Additionally, abundant sunlight triggers photochemical reactions which produce O_3 and the majority of particulate matter.

Air Monitoring Data. The SCAQMD monitors air quality conditions at 38 source receptor areas (SRA) throughout the Basin. The Project Site is located in SCAQMD's South Coastal LA receptor area. Historical data from the area was used to characterize existing conditions in the vicinity of the Project area. Table 2 shows pollutant levels, State and federal standards, and the number of exceedances recorded in the area from 2021 through 2023. The one-hour State standard for O_3 was exceeded once during this three-year period. The federal standard was exceeded once in that same period. In addition, the daily State standard for PM_{10} was exceeded 69 times, exclusively in 2022 and 2023. The daily federal standard for $PM_{2.5}$ was exceeded four times. CO, SO_2, and NO_2 levels did not exceed the CAAQS from 2021 to 2023 for 1-hour (and 8-hour for CO).

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7 California Air Resources Board, Overview: Diesel Exhaust and Health, www.arb.ca.gov/research/diesel/diesel-health.htm, last reviewed by CARB April 12, 2016.

8 California Air Resources Board, Fact Sheet: Diesel Particulate Matter Health Risk Assessment Study for the West Oakland Community: Preliminary Summary of Results, March 2008.

Table 2
Ambient Air Quality Data

Pollutants and State and Federal Standards	Maximum Concentrations and Frequencies of Exceedance Standards		
	2021	2022	2023
Ozone (O_3)			
Maximum 1-hour Concentration (ppm)	0.086	0.108	0.089
Days > 0.09 ppm (State 1-hour standard)	0	1	0
Days > 0.070 ppm (Federal 8-hour standard)	0	1	0
Carbon Monoxide (CO_2)			
Maximum 1-hour Concentration (ppm)	N/A	N/A	N/A
Days > 20 ppm (State 1-hour standard)	0	0	0
Maximum 8-hour Concentration (ppm)	N/A	N/A	N/A
Days > 9.0 ppm (State 8-hour standard)	0	0	0
Nitrogen Dioxide (NO_2)			
Maximum 1-hour Concentration (ppm)	0.0590	0.0581	0.0562
Days > 0.18 ppm (State 1-hour standard)	0	0	0
PM_{10}			
Maximum 24-hour Concentration (µg/m^3)	48	128	148
Days > 50 µg/m^3 (State 24-hour standard)	0	33	36
$PM_{2.5}$			
Maximum 24-hour Concentration (µg/m^3)	42.9	28.8	26.5
Days > 35 µg/m^3 (Federal 24-hour standard)	4	0	0
Sulfur Dioxide (SO_2)			
Maximum 1-hour Concentration (ppb)	3.9	6.1	23.2
Days > 0.25 ppm (State 1-hour standard)	0	0	0

ppm = parts by volume per million of air.
µg/m^3 = micrograms per cubic meter.
N/A = not available at this monitoring station.
Source: SCAQMD annual monitoring data at South Coastal LA subregion (http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year) accessed August 27, 2024. Values represent the highest of the four monitoring stations in the subregion.

Existing Health Risk in the Surrounding Area. Based on the MATES-V model, the calculated cancer risk in the Project area (zip code 90745) is approximately 577 in a million.[9] The cancer risk in this area is predominantly influenced by nearby sources of diesel particulate matter (e.g., diesel trucks and traffic on the San Diego Freeway 480 feet to the west). In general, the risk at the Project Site is higher than 88 percent of the population across the South Coast Air Basin.

The Office of Environmental Health Hazard Assessment, on behalf of the California Environmental Protection Agency (CalEPA), provides a screening tool called CalEnviroScreen that can be used to help identify California communities disproportionately burdened by multiple sources of pollution. According

[9] South Coast Air Quality Management District, Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-V), MATES V Interactive Carcinogenicity Map, 2021, https://experience.arcgis.com/experience/79d3b6304912414bb21ebdde80100b23/page/home/?data_id=dataSource_105-a5ba9580e3aa43508a793fac819a5a4d%3A26&views=view_39%2Cview_1, accessed November 19, 2024.

to CalEnviroScreen, the Project Site (Census tract 6037543306 is located in the 79th percentile, which means the Project Site has an overall environmental pollution burden higher than at least 79 percent of other communities within California.[10]

Sensitive Receptors. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified several groups that are most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The Project Site is located on the Carson Street corridor that flanks the Dominguez Channel and is home to a mix of residential and commercial uses. Sensitive receptors within 0.25 miles of the Project Site include, but are not limited to, the following representative sampling:

- Residences, 215th Place; approximately 25 feet north of the Project Site.
- Residences, Perry Street; 80 feet east of the Project Site.
- Residences – Ashmill Street; 250 feet southeast of the Project Site.
- Residences, Edgar Street; 800 feet southwest of the Project Site.

Existing Project Site Emissions. The Project Site is vacant. As such, there are no criteria pollutant emissions from anthropogenic sources on the Project Site.

Project Impacts

Methodology

The air quality analysis conducted for the Project is consistent with the methods described in the SCAQMD CEQA Air Quality Handbook (1993 edition), as well as the updates to the CEQA Air Quality Handbook, as provided on the SCAQMD website. The SCAQMD recommends the use of the California Emissions Estimator Model (CalEEMod) as a tool for quantifying emissions of air pollutants that will be generated by constructing and operating development projects. The analyses focus on the potential emissions from construction and operation of the Project. Methodologies used to evaluate these emissions are discussed below.

Construction. Sources of air pollutant emissions associated with construction activities include heavy-duty off-road diesel equipment and vehicular traffic to and from the Project construction site. Where available, project-specific information was provided on the schedule of construction activities and the anticipated equipment inventory. Otherwise, model default values were used for equipment usage rates, worker trip lengths, emission factors for heavy-duty equipment, passenger vehicles, and haul trucks that have been derived by CARB. Maximum daily emissions were quantified for each construction activity based on the number of equipment and daily hours of use, in addition to vehicle trips to and from the

[10] Office of Environmental Health Hazard Assessment, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40, accessed November 19, 2024.

Project Site. Details pertaining to the schedule and equipment can be found in the Technical Appendix to this analysis.

The SCAQMD recommends that air pollutant emissions be assessed for both regional scale and localized impacts. The regional emissions analysis includes both on-site and off-site sources of emissions, while the localized emissions analysis focuses only on sources of emissions that would be located on the Project Site.

Localized impacts were analyzed in accordance with the SCAQMD Localized Significance Threshold (LST) methodology.[11] The localized effects from on-site portion of daily emissions were evaluated at sensitive receptor locations potentially impacted by the Project according to the SCAQMD's LST methodology, which uses on-site mass emission look-up tables and Project-specific modeling, where appropriate.[12] SCAQMD provides LSTs applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. SCAQMD does not provide an LST for SO_2 since land use development projects typically result in negligible construction and long-term operation emissions of this pollutant. Since VOCs are not a criteria pollutant, there is no ambient standard or SCAQMD LST for VOCs. Due to the role VOCs play in O_3 formation, it is classified as a precursor pollutant, and only a regional emissions threshold has been established.

LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. The mass rate look-up tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. SCAQMD provides LST mass rate look-up tables for projects with active construction areas that are less than or equal to five acres. If the project exceeds the LST look-up values, then the SCAQMD recommends that project-specific air quality modeling must be performed. Please refer to **Threshold b** below, for the analysis of localized impacts from on-site construction activities. In accordance with SCAQMD guidance, maximum daily emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ from on-site sources during each construction activity were compared to LST values for a two-acre site having sensitive receptors within 25 meters (82 feet).[13] This is appropriate, given the 2.80-acre site and the proximity of sensitive receptors as close as 25 feet from the Project Site.

The Basin is divided into 38 SRAs, each with its own set of maximum allowable LST values for on-site emissions sources during construction and operations based on locally monitored air quality. Maximum on-site emissions resulting from construction activities were quantified and assessed against the applicable LST values.

The significance criteria and analysis methodologies in the SCAQMD's CEQA Air Quality Handbook were used in evaluating impacts in the context of the CEQA significance criteria listed below. The

11 South Coast Air Quality Management District, Final Localized Significance Methodology, revised July 2008.

12 South Coast Air Quality Management District, LST Methodology Appendix C-Mass Rate LST Look-Up Table, https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2, October 2009.

13 South Coast Air Quality Management District, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds, https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf, 2008.

SCAQMD LSTs for NO_2, CO, and PM_{10} were initially published in June 2003 and revised in July 2008.[14] The LSTs for $PM_{2.5}$ were established in October 2006 and updated on October 21, 2009.[15] [16] Table 3 presents the significance criteria for both construction and operational emissions.

Table 3
SCAQMD Emissions Thresholds

Criteria Pollutant	Construction Emissions		Operation Emissions	
	Regional	Localized /a/	Regional	Localized /a/
Volatile Organic Compounds (VOC)	75	--	55	--
Nitrogen Oxides (NO_X)	100	82	55	82
Carbon Monoxide (CO)	550	842	550	842
Sulfur Oxides (SO_X)	150	--	150	--
Respirable Particulates (PM_{10})	150	7	150	2
Fine Particulates ($PM_{2.5}$)	55	5	55	1

/a/ Localized significance thresholds assumed a two-acre and 25-meter (82-foot) receptor distance in the South Coastal LA source receptor area. The SCAQMD has not developed LST values for VOC or SO_X. Pursuant to SCAQMD guidance, this analysis uses a five-acre threshold as it assumes a maximum daily disturbed acreage of at least five acres (SCAQMD Fact Sheet for Applying CalEEMod to Localized Significance Thresholds)

Source: SCAQMD, South Coast AQMD Air Quality Significance Thresholds, 2023

Operations. CalEEMod also generates estimates of daily and annual emissions of air pollutants resulting from future operation of a project. Operational emissions are produced by mobile sources (vehicular travel) and stationary sources (e.g., utilities demand). Utilities for the Project Site are provided by Southern California Edison (SCE) for electricity and Southern California Gas for natural gas, where applicable. CalEEMod has derived default emissions factors for electricity and natural gas use that are applied to the size and land use type of the Project. CalEEMod also estimates operational emissions associated with water use, wastewater generation, and solid waste disposal.

Similar to construction, SCAQMD's CalEEMod software was used for the evaluation of Project emissions during operation. CalEEMod was used to calculate on-road fugitive dust, architectural coatings, landscape equipment, energy use, mobile source, and stationary source emissions.[17] To determine if a significant air quality impact would occur, the net increase in regional and local operational emissions

14 Ibid.

15 South Coast Air Quality Management District, Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf, October 2006.

16 South Coast Air Quality Management District, Final Localized Significance Threshold Methodology Appendix C – Mass Rate LST Look-Up Tables, https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2, October 21, 2009.

17 Energy consumption estimates with CalEEMod 2022.1.1.29 are based on the California Energy Commission's 2020 Residential Appliance Saturation Survey (residential uses) and 2021 Commercial Forecast database, both of which reflected the 2019 Title 24 energy efficiency standards. These energy consumption estimates were adjusted to reflect the 2022 Title 24 standards that cumulatively produce a 0.49 percent reduction in electricity use and 0.45 percent reduction in natural gas use when compared to the 2019 standards.

generated by the Project was compared against SCAQMD's significance thresholds.[18] Details describing the operational emissions of the Project can be found in in the Technical Appendix.

Toxic Air Contaminants Impacts (Construction and Operations). Potential TAC impacts are evaluated by conducting a qualitative analysis consistent with the CARB Handbook followed by a more detailed analysis (i.e., dispersion modeling), as necessary. The qualitative analysis consists of reviewing the Project to identify any new or modified TAC emissions sources. If the qualitative evaluation does not rule out significant impacts from a new source, or modification of an existing TAC emissions source, a more detailed analysis is conducted.

Thresholds of Significance

State CEQA Guidelines Appendix G

Would the Project:

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

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

c) *Expose sensitive receptors to substantial pollutant concentrations; or*

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

City and SCAQMD Thresholds

For this analysis the Appendix G Thresholds are relied upon. The analysis utilizes factors and considerations recommended by the City of Carson and SCAQMD Thresholds, as appropriate, to assist in answering the Appendix G Threshold questions.

(a) Construction

The City recommends that determination of significance be made on a case-by-case basis, considering the following criteria to evaluate construction-related air emissions:

(i) Combustion Emissions from Construction Equipment

- Type, number of pieces and usage for each type of construction equipment;
- Estimated fuel usage and type of fuel (diesel, natural gas) for each type of equipment; and
- Emission factors for each type of equipment.

(ii) Fugitive Dust—Grading, Excavation and Hauling

[18] South Coast Air Quality Management District, Air Quality Significance Thresholds, revised March 2015. SCAQMD based these thresholds, in part on the federal Clean Air Act and, to enable defining "significant" for CEQA purposes, defined the setting as the South Coast Air Basin. (See SCAQMD, CEQA Air Quality Handbook, April 1993, pp. 6-1-6-2).

- Amount of soil to be disturbed on-site or moved off-site;
- Emission factors for disturbed soil;
- Duration of grading, excavation and hauling activities;
- Type and number of pieces of equipment to be used; and
- Projected haul route.

(iii) Fugitive Dust—Heavy-Duty Equipment Travel on Unpaved Road

- Length and type of road;
- Type, number of pieces, weight and usage of equipment; and
- Type of soil.

(iv) Other Mobile Source Emissions

- Number and average length of construction worker trips to Project Site, per day; and
- Duration of construction activities.

In addition, the following criteria set forth in the SCAQMD's *CEQA Air Quality Handbook* serve as quantitative air quality standards to be used to evaluate project impacts under the Appendix G Thresholds. Under these thresholds, a significant threshold would occur when:[19]

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 100 pounds per day for NO_X; (2) 75 pounds a day for VOC; (3) 150 pounds per day for PM_{10} or SO_X; (4) 55 pounds per day for $PM_{2.5}$; and (5) 550 pounds per day for CO.

- Maximum on-site daily localized emissions exceed the LST, resulting in predicted ambient concentrations in the vicinity of the Project Site greater than the most stringent ambient air quality standards for CO (20 ppm [23,000 µg/m^3] over a 1-hour period or 9.0 ppm [10,350 µg/m^3] averaged over an 8-hour period) and NO_2 (0.18 ppm [339 µg/m^3] over a 1-hour period, 0.1 ppm [188 µg/m^3] over a three-year average of the 98th percentile of the daily maximum 1-hour average, or 0.03 ppm [57 µg/m^3] averaged over an annual period).

- Maximum on-site localized PM_{10} or $PM_{2.5}$ emissions during construction exceed the applicable LSTs, resulting in predicted ambient concentrations in the vicinity of the Project Site to exceed the incremental 24-hour threshold of 10.4 µg/m^3 or 1.0 µg/m^3 PM_{10} averaged over an annual period.

(b) Operation

The City bases the determination of significance of operational air quality impacts on criteria set forth in the SCAQMD's *CEQA Air Quality Handbook.*[20] As discussed above, the City uses Appendix G as the thresholds of significance for this analysis. Accordingly, the following serve as quantitative air quality

[19] South Coast Air Quality Management District, Air Quality Significance Thresholds, revised March 2015.
[20] South Coast Air Quality Management District, Air Quality Significance Thresholds, revised March 2015.

standards to be used to evaluate project impacts under the Appendix G thresholds. Under these thresholds, a significant threshold would occur when:

- Operational emissions exceed 10 tons per year of volatile organic gases or any of the following SCAQMD prescribed threshold levels: (1) 55 pounds a day for VOC;[21] (2) 55 pounds per day for NO_X; (3) 550 pounds per day for CO; (4) 150 pounds per day for SO_X; (5) 150 pounds per day for PM_{10}; and (6) 55 pounds per day for $PM_{2.5}$.[22]

- Maximum on-site daily localized emissions exceed the LST, resulting in predicted ambient concentrations in the vicinity of the Project Site greater than the most stringent ambient air quality standards for CO (20 parts per million (ppm) over a 1-hour period or 9.0 ppm averaged over an 8-hour period) and NO_2 (0.18 ppm over a 1-hour period, 0.1 ppm over a 3-year average of the 98th percentile of the daily maximum 1-hour average, or 0.03 ppm averaged over an annual period).[23]

- Maximum on-site localized operational PM_{10} and $PM_{2.5}$ emissions exceed the incremental 24-hour threshold of 2.5 µg/m^3 or 1.0 µg/m^3 PM_{10} averaged over an annual period.[24]

- The Project causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 ppm, respectively; or

- The Project creates an odor nuisance pursuant to SCAQMD Rule 402.

(c) Toxic Air Contaminants

The City recommends that the determination of significance shall be made on a case-by-case basis, considering the following criteria to evaluate TACs:

- Would the project use, store, or process carcinogenic or non-carcinogenic toxic air contaminants which could result in airborne emissions?

In assessing impacts related to TACs in this section, the City uses Appendix G as the thresholds of significance. The criteria identified above will be used where applicable and relevant to assist in analyzing the Appendix G thresholds. In addition, the following criteria set forth in the SCAQMD's *CEQA Air Quality Handbook* serve as quantitative air quality standards to be used to evaluate project impacts under Appendix G thresholds. Under these thresholds, a significant threshold would occur when:[25]

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21 For purposes of this analysis, emissions of VOC and reactive organic compounds (ROG) are used interchangeably since ROG represents approximately 99.9 percent of VOC emissions.

22 South Coast Air Quality Management District, Quality Significance Thresholds, www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf, last updated March 2015.

23 South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, revised July 2008.

24 South Coast Air Quality Management District, Final—Methodology to Calculate Particulate Matter (PM) 2.5 and $PM_{2.5}$ Significance Thresholds, October 2006.

25 South Coast Air Quality Management District, CEQA Air Quality Handbook, April 1993, Chapter 6 (Determining the Air Quality Significance of a Project) and Chapter 10 (Assessing Toxic Air Pollutants).

- The Project results in the exposure of sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of 10 in one million or an acute or chronic hazard index of 1.0.[26] For projects with a maximum incremental cancer risk between 1 in one million and 10 in one million, a project would result in a significant impact if the cancer burden exceeds 0.5 excess cancer cases.

(d) Consistency with Applicable Air Quality Plans

CEQA Guidelines Section 15125 requires an analysis of project consistency with applicable governmental plans and policies. This analysis is conducted to assess potential project impacts against Threshold (a) from the Appendix G thresholds. In accordance with the SCAQMD's *CEQA Air Quality Handbook*, the following criteria are used to evaluate a project's consistency with the AQMP:[27]

- Will the Project result in any of the following:
  - An increase in the frequency or severity of existing air quality violations;
  - Cause or contribute to new air quality violations; or
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP?
- Will the Project exceed the assumptions utilized in preparing the AQMP?
  - Is the Project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based;
  - Does the Project include air quality mitigation measures; or
  - To what extent is Project development consistent with the AQMP land use policies?

The Project's impacts with respect to these criteria are discussed to assess the consistency with the SCAQMD's AQMP and SCAG regional plans and policies. In addition, the Project's consistency with the City of Carson General Plan.

Project Design Features. The Project would comply with the 2022 Carson Building Code which incorporates the standards set in the 2022 California Green Building Standards Code (CalGreen, effective January 1, 2023).[28] Construction in later years could be subject to the future 2025 Building Code and CalGreen standards. Further energy efficiency and sustainability features would include native plants and drip/subsurface irrigation systems, individual metering or sub metering for water use, leak detection systems, and electric vehicle charging capacity.

[26] Hazard index is the ratio of a toxic air contaminant's concentration divided by its Reference Concentration, or safe exposure level. If the hazard index exceeds one, people are exposed to levels of TACs that may pose noncancer health risks.

[27] South Coast Air Quality Management District, CEQA Air Quality Handbook, April 1993, p. 12-3.

[28] California Building Codes: http://www.bsc.ca.gov/Codes.aspx.

Analysis of Project Impacts

a. Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The Project's air quality emissions would not exceed any State or federal standards. Therefore, the Project would not increase the frequency or severity of an existing violation or cause or contribute to new violations for these pollutants. As the Project would not exceed any State and federal standards, the Project would also not delay timely attainment of air quality standards or interim emission reductions specified in the AQMP.

With respect to the determination of consistency with AQMP growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2020-2045 RTP/SCS regarding population, housing, and growth trends.[29] Determining whether a project exceeds the assumptions reflected in the AQMP involves the evaluation of three criteria: (1) consistency with applicable population, housing, and employment growth projections; (2) project mitigation measures; and (3) appropriate incorporation of AQMP land use planning strategies. The following discussion provides an analysis with respect to each of these three criteria.

- Is the project consistent with the population, housing, and employment growth projections upon which AQMP forecasted emission levels are based?

A project is consistent with the AQMP, in part, if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. In the case of the 2022 AQMP, two sources of data form the basis for the projections of air pollutant emissions: the City of Carson General Plan and SCAG's RTP. The General Plan serves as a comprehensive, long-term plan for future development of the City.

The 2020-2045 RTP/SCS provides socioeconomic forecast projections of regional population growth. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on local plans and policies applicable to the specific area; these are used by SCAG in all phases of implementation and review. The 2020-2045 RTP/SCS accommodates a total of 105,200 persons; 30,700 households; and 70,000 jobs in the City of Carson by 2045.

On April 4, 2024, SCAG adopted the 2024-2050 RTP/SCS, which accommodates 100,200 persons; 31,400 households; and 62,300 jobs in the City of Carson by 2050. Once the 2022 AQMP is updated with these growth forecasts, consistency with the projections in the applicable air quality plan for the region will be based on the 2024-2050 RTP/SCS.

The City provided local growth forecasts that were incorporated into the regional projections. The General Plan describes the "Corridor Mixed Use" designation as a mix of commercial and residential uses. As such, the RTP/SCS' assumptions about growth in the City accommodate the projected population and housing on the Project Site. As a result, the Project would be consistent with the growth assumptions in the City's General Plan. Because the AQMP accommodates growth forecasts from local General Plans, the emissions associated with this Project are accounted for and mitigated in the region's

[29] While SCAG adopted the 2024-2050 RTP/SCS on April 4, 2024, the region's applicable air quality plan is the 2022 AQMP, which is based on the growth assumptions of the 2020-2045 RTP/SCS. Once the 2022 AQMP is updated with these growth forecasts, consistency with the projections in the applicable air quality plan for the region will be based on the 2024-2050 RTP/SCS.

air quality attainment plans. The air quality impacts of development on the Project Site are accommodated in the region's emissions inventory for the 2020-2045 RTP/SCS and 2022 AQMP

Based on the average 2045 persons-per-household rate for the City of 3.43 persons per household,[30] the Project would add a residential population of approximately 213 people to the Project Site based on the 62 dwelling units proposed. The Project's residential population would represent approximately 1.8 percent of the forecast population growth of 11,600 between 2016 and 2045 and be consistent with the local growth assumptions that formed the basis of the region's AQMP.

- Does the project implement feasible air quality mitigation measures?

As discussed below under Thresholds (b), (c), and (d), the Project would not result in any significant air quality impacts and therefore would not require mitigation. In addition, the Project would comply with all applicable regulatory standards as required by SCAQMD. Furthermore, with compliance with the regulatory requirements identified above, no significant air quality impacts would occur. As such, the proposed Project meets this AQMP consistency criterion.

- To what extent is project development consistent with the land use policies set forth in the AQMP?

With regard to land use developments, the AQMP's air quality policies focus on the reduction of vehicle trips and VMT. The Project would implement a number of land use policies of the City of Carson, SCAQMD, and SCAG, as it would be designed and constructed to support and promote environmental sustainability. The Project represents an infill development within an urbanized area that would concentrate more housing and population within a HQTA. "Green" principles are incorporated throughout the Project to comply with the City of Carson Green Building Code and CALGreen through energy conservation, water conservation, and waste reduction features.

The air quality plan applicable to the Project area is the 2022 AQMP, the current management plan for progression toward compliance with State and federal clean air requirements. The Project would be required to comply with all regulatory measures set forth by the SCAQMD. Implementation of the Project would not interfere with air pollution control measures listed in the 2022 AQMP. As noted earlier, the Project is consistent with the land use policies of the City that were reflected in the regional growth projections for the AQMP. As demonstrated in the following analysis, the Project would not result in significant emissions that would jeopardize regional or localized air quality standards.

City of Carson Policies

The Project would offer convenient access to public transit and opportunities for walking and biking (including the provision of bicycle parking), thereby facilitating a reduction in VMT. In addition, the Project would be consistent with the existing land use pattern in the vicinity that concentrates urban density along major arterials and near transit options and would help reduce air quality emissions in several ways:

- The Project Site is within a HQTA, which reflects areas with rail transit service or bus service

[30] Southern California Association of Governments, 2020-2045 Regional Transportation Plan, Demographics and Growth Forecast Technical Report; September 3, 2020.

where lines have peak headways of less than 15 minutes.[31]

- There is substantial public transit service in the area, including:
  - Long Beach Transit Route 4 provides east-west circulator service in Carson, with the closest bus stop on Carson Street in front of the Project Site for westbound travel.
  - Los Angeles County Metropolitan Transportation Authority (Metro) Line 246 provides north-south service from Gardena to San Pedro, with the closest bus stop on Avalon Boulevard at 213th Street west of the Project Site.
  - Torrance Transit Line 3 provides east-west service from Redondo Beach to Long Beach, with the closest stop on Carson Street at Avalon Boulevard.
  - Torrance Transit Line R3 provides east-west express bus service from Torrance to Long Beach, with the closest stop on Carson Street at Avalon Boulevard.
- The project will provide bicycle parking spaces in each of the residences.

The City's General Plan Open Space and Environmental Conservation Element and Community Health and Environmental Justice Element identify twelve policies with specific strategies for advancing the City's clean air goals. As illustrated in Table 4, the Project is consistent with the applicable policies in the General Plan, as the Project would implement sustainability features that would reduce vehicular trips, reduce VMT, and encourage the use of alternative modes of transportation. Therefore, the Project would result in a less than significant impact related to consistency with the General Plan.

Table 4
Project Consistency with City of Carson General Plan

Policy	Project Consistency
Open Space and Environmental Conservation Element	
Policy OSEC-G-17: Support regional efforts to reduce pollution from significant sources that negatively affect the City, such as port and truck pollution from the ports of Los Angeles and Long Beach.	**Not Applicable.** This policy calls for the City of Carson to coordinate with SCAQMD and other entities to reduce mobile and stationary sources of air pollution from the ports and is not applicable to development projects. Nevertheless, the Proposed Project would not inhibit such advocacy.
Policy OSEC-G-18: Continue to work with South Coast Air Quality Management District (SCAQMD) to reduce generation of air pollutants, improve air quality, and meet all national and State ambient air quality standards.	**Not Applicable.** This policy calls for the City of Carson to coordinate with SCAQMD on policies that will help achieve clean air standards and is not applicable to development projects. Nevertheless, the Project would advance the City's objectives for creating denser and walkable neighborhoods that promote alternative transportation and reduce air quality emissions.
Policy OSEC-G-19: Seek to reduce mobile sources of air pollution by creating denser and walkable neighborhoods, promoting transit-oriented development, and improving bicycle infrastructure, with the goal to reduce the number of miles traveled in cars and improve regional air quality.	**Consistent.** The proposed development would advance the City's objectives for creating denser and walkable neighborhoods that promote alternative transportation and reduce air quality emissions. In turn, the Project Site is well-served by public transit, including Metro Line 246 and Long Beach Transit Route 4 with nearby stops on Carson Street as well as Torrance

[31] Southern California Association of Governments Data Portal https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_active-transportation.pdf?1606001530,

Table 4
Project Consistency with City of Carson General Plan

Policy	Project Consistency
	Transit Lines 3 and R3 that provide local and rapid bus services on Carson Street west of the Project Site.
Policy OSEC-G-20: Seek to reduce air quality impacts of industrial and commercial uses, like oil refineries and trucking, for both mobile and stationary sources of pollution.	**Not Applicable.** This project would not include industrial and commercial uses that produce substantial mobile and stationary source missions.
Policy OSEC-G-21: Lessen exposure of sensitive uses to pollutants emitted by mobile sources by buffering freeways, major arterials, and truck routes with trees and vegetation.	**Consistent.** The proposed development would reduce exposure of residences from the San Diego Freeway by including a buffer along the western property line fronting the Dominguez Channel that includes outdoor recreational areas. The Project would also include a community wall along the western perimeter that will reduce transmissions of particulates and local pollutants from the freeway.
Policy OSEC-G-22: Promote clean and alternative fuel combustion in City-owned mobile equipment and vehicles.	**Not Applicable.** This policy calls for the City of Carson to promote clean fuel technology in its vehicle fleets. Nevertheless, the Proposed Project would not inhibit such a policy and would include electric vehicle charging stations to advance the State and local goals to promote clean fuel technology.
Community Health and Environmental Justice Element	
Policy CHE-G-2: Reduce air pollution and the incidence of respiratory illness through the land use planning process.	**Not Applicable.** This policy calls for the City of Carson to use land use policy to reduce air pollution and is not applicable to development projects. Nevertheless, the Proposed Project would not inhibit such a policy.
Policy CHE-G-3: Proactively coordinate City air quality improvement activities with the South Coast Air Quality Management District and other regional programs, as well as with neighboring communities.	**Not Applicable.** This policy calls for the City of Carson to coordinate with SCAQMD and other entities on air pollution reduction activities and is not applicable to development projects. Nevertheless, the Proposed Project would not inhibit such advocacy.
Policy CHE-G-4: Protect community health from pollution by toxics and hazardous materials, especially in areas with vulnerable or sensitive populations.	**Not Applicable.** This policy calls for the City of Carson to use land use policy to protect community health and is not applicable to development projects. Nevertheless, the Proposed Project would not inhibit such a policy.
Policy CHE-P-5: Continue to enforce zoning and design standards that protect sensitive uses from the encroachment of land uses that would result in impacts from noxious fumes or toxins.	**Not Applicable.** This policy calls for the City of Carson to use land use policy and code enforcement to protect community health and is not applicable to development projects. Nevertheless, the Proposed Project would not inhibit such a policy.
Policy CHE-G-6: Collaborate with South Coast Air Quality Management District (SCAQMD) to coordinate policies that reduce air pollution from local sources and implement programs that leverage funding from Senate Bill (SB) 535, Assembly Bill (AB) 1550, AB 617, and other sources to improve air quality and public health.	**Not Applicable.** This policy calls for the City of Carson to coordinate with SCAQMD and other entities to coordinate State, regional, and local policies and is not applicable to development projects. Nevertheless, the Proposed Project would not inhibit such advocacy.

Table 4
Project Consistency with City of Carson General Plan

Policy	Project Consistency
Policy CHE-G-8: Avoid new toxin sources by stringently evaluating the siting of facilities that might significantly increase pollution, especially near already disproportionately impacted communities.	**Not Applicable.** This project would not include industrial or other uses that emit toxins.
Source: DKA Planning, 2024.	

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

Less Than Significant Impact.

Construction

A cumulatively considerable net increase would occur if the project's construction impacts substantially contribute to air quality violations when considering other projects that may undertake construction activities at the same time. Individual projects that generate emissions that do not exceed SCAQMD's significance thresholds would not contribute considerably to any potential cumulative impact. SCAQMD neither recommends quantified analyses of the emissions generated by a set of cumulative development projects nor provides thresholds of significance to assess the impacts associated with these emissions.[32]

Construction-related emissions were estimated using the SCAQMD's CalEEMod 2022.1.1.29 model and a projected construction schedule of at least 16 months. Table 5 summarizes the potential construction schedule that was modeled for air quality impacts.

[32] South Coast Air Quality Management District, 2003 White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution, https://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf: "As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR…Projects that exceed the project-specific significance threshold are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are not considered to be cumulatively significant.

Table 5
Construction Schedule Assumptions

Phase	Duration	Notes
Site Preparation	Month 1	Grubbing and removal of 32 trees on-site and four municipal trees, plants, landscaping, weeds
Grading	Months 2-3	Approximately 4,590 cubic yards of soil imported 40 miles to site in 14-cubic yard capacity trucks.
Trenching	Months 4-16	Trenching for utilities, including gas, water, electricity, and telecommunications.
Building Construction	Months 4-16	Footings and foundation work (e.g., pouring concrete pads), framing, welding; installing mechanical, electrical, and plumbing. Floor assembly, cabinetry and carpentry, elevator installations, low voltage systems, trash management.
Paving	Months 5-6	Flatwork, including paving of driveways and walkways
Architectural Coatings	Months 9-16	Application of interior and exterior coatings and sealants.
Source: DKA Planning, 2024.		

The Project would be required to comply with the following regulations, as applicable:

- SCAQMD Rule 403, would reduce the amount of particulate matter entrained in ambient air as a result of anthropogenic fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

- SCAQMD Rule 1113, which limits the VOC content of architectural coatings.

- SCAQMD Rule 402, which states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause 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.

- In accordance with Section 2485 in Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (with gross vehicle weight over 10,000 pounds) during construction would be limited to five minutes at any location.

- In accordance with Section 93115 in Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines would meet specific fuel and fuel additive requirements and emissions standards.

Regional Emissions

Construction activity creates air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the Project Site. NO_X emissions would primarily result from the use of construction equipment and truck trips.

Fugitive dust emissions would peak during grading activities, where approximately 380 cubic yards of cut and 5,400 cubic yards of fill activities would be involved. Approximately 4,590 cubic yards of soil would be imported to the Project Site. All construction projects in the Basin must comply with SCAQMD Rule 403 for fugitive dust, which include measures to prevent visible dust plumes. Other measures include, but are not limited to, applying water and/or soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system or other control measures to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project Site, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce regional $PM_{2.5}$ and PM_{10} emissions associated with construction activities by approximately 61 percent.

During the building finishing phase, the application of architectural coatings (e.g., paints) would release VOCs (regulated by SCAQMD Rule 1113). The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

As shown in Table 6, construction of the Project would produce VOC, NO_X, CO, SO_X, PM_{10} and $PM_{2.5}$ emissions that do not exceed the SCAQMD's regional thresholds. As a result, construction of the Project would not contribute substantially to an existing violation of air quality standards for regional pollutants (e.g., ozone). This impact is considered less than significant.

Localized Emissions

In addition to maximum daily regional emissions, maximum localized (on-site) emissions were quantified for each construction activity. The localized construction air quality analysis was conducted using the methodology promulgated by the SCAQMD. Look-up tables provided by the SCAQMD were used to determine localized construction emissions thresholds for the Project.[33] LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard and are based on the most recent background ambient air quality monitoring data (2021-2023) for the Project area.

[33] South Coast Air Quality Management District, LST Methodology Appendix C-Mass Rate LST Look-Up Table, https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2, October 2009.

Table 6
Daily Construction Emissions

Construction Phase Year	Daily Emissions (Pounds Per Day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
2025	2.2	17.3	23.7	<0.1	4.0	2.1
2026	6.5	16.5	23.3	<0.1	1.4	0.8
Maximum Regional Total	6.5	17.3	23.7	<0.1	4.0	2.1
Regional Threshold	75	100	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum Localized Total	15.9	14.1	14.5	<0.1	3.4	1.9
Localized Threshold	N/A	82	842	N/A	7	5
Exceed Threshold?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

The construction dates are used for the modeling of air quality emissions in the CalEEMod software. If construction activities commence later than what is assumed in the environmental analysis, the actual emissions would be lower than analyzed because of the increasing penetration of newer equipment with lower certified emission levels. Assumes implementation of SCAQMD Rule 403 (Fugitive Dust Emissions)

Source: DKA Planning, 2024 based on CalEEMod 2022.1.1.29 model runs. LST analyses based on two-acre site with 25-meter distances to receptors in South Coastal LA source receptor area. Estimates reflect the peak summer or winter season, whichever is higher. Totals may not add up due to rounding. Modeling sheets included in the Technical Appendix.

Maximum on-site daily construction emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ were calculated using CalEEMod and compared to the applicable SCAQMD LSTs for the South Coastal LA SRA based on construction site acreage that is equal to or less than two acres. Potential impacts were evaluated at the closest off-site sensitive receptor, which are the residences 25 feet to the north of the Project Site on 215th Place. The closest receptor distance on the SCAQMD mass rate LST look-up tables is 25 meters.

As shown in Table 6, above**,** the Project would produce emissions that do not exceed the SCAQMD's recommended localized standards of significance for NO_2 and CO during the construction phase. Similarly, construction activities would not produce PM_{10} and $PM_{2.5}$ emissions that exceed localized thresholds recommended by the SCAQMD. These estimates assume the use of Best Available Control Measures (BACMs) that address fugitive dust emissions of PM_{10} and $PM_{2.5}$ through SCAQMD Rule 403. This would include watering portions of the site that are disturbed during grading activities and minimizing tracking of dirt onto local streets. Therefore, construction impacts on localized air quality are considered less than significant.

Operation

Operational emissions of criteria pollutants would come from area, energy, and mobile sources. Area sources include consumer products such as household cleaners, architectural coatings for routine

maintenance, and landscaping equipment.[34] Energy sources include electricity and natural gas use for space cooling and heating and water heating. The CalEEMod model generates estimates of emissions from energy use based on the land use type and size. The Project would also produce long-term air quality impacts to the region primarily from motor vehicles that access the Project Site. The Project could add approximately 446 vehicle trips to local roadways and the region's air quality airshed on a weekday at the start of operations in 2027.[35]

As shown in Table 7, the Project's emissions would not exceed the SCAQMD's regional or localized significance thresholds. Therefore, the operational impacts of the Project on regional and localized air quality are considered less than significant.

Table 7
Daily Operations Emissions

Emissions Source	Daily Emissions (Pounds Per Day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	3.4	<0.1	3.5	<0.1	<0.1	<0.1
Energy Sources	<0.1	0.2	0.1	<0.1	0.1	0.1
Mobile Sources	1.4	1.0	11.8	<0.1	2.7	0.7
Vegetation	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Regional Total	4.8	1.2	15.4	<0.1	2.7	0.7
Regional Significance Threshold	55	55	550	150	150	55
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Net Localized Total	3.4	0.2	3.6	<0.1	0.1	0.1
Localized Significance Threshold	N/A	82	842	N/A	2	1
Exceed Threshold?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

LST analyses based on two-acre site with 25-meter distances to receptors in South Coastal LA SRA
Source: DKA Planning, 2024 based on CalEEMod 2022.1.1.29 model runs (included in the Technical Appendix). Totals reflect the summer season maximum and may not add up due to rounding.

c. Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. There are several sensitive receptors within 0.25 miles (1,320 feet) of the Project Site that could be exposed to air pollution from construction and operation of the Project, including, but are not limited to, the following representative sampling:

- Residences, 215th Place; approximately 25 feet north of the Project Site.
- Residences, Perry Street; 80 feet east of the Project Site.
- Residences – Ashmill Street; 250 feet southeast of the Project Site.

[34] In 2021, CARB adopted regulations requiring that all small (25 horsepower and below) spark-ignited off-road engines (e.g., lawn and gardening equipment) be zero emission starting in model year 2024. Standards for portable generators and large pressure washers are given until model year 2028 to be electric-powered.

[35] Fehr & Peers, Draft Memorandum; 21611 Perry Street Residential Project Non-CEQA Trip Generation Comparison; July 29, 2024.

- Residences, Edgar Street; 800 feet southwest of the Project Site.

Construction

Construction of the Project could expose sensitive receptors to substantial pollutant concentrations if maximum daily emissions of regulated pollutants generated by sources located on and/or near the Project Site exceeded the applicable LST values presented in Table 3, or if construction activities generated significant emissions of TACs that could result in carcinogenic risks or non-carcinogenic hazards exceeding the SCAQMD Air Quality Significance Thresholds of ten excess cancers per million or non-carcinogenic Hazard Index greater than 1.0, respectively. As discussed above, the LST values were derived by the SCAQMD for the criteria pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$ to prevent the occurrence of concentrations exceeding the air quality standards at sensitive receptor locations based on proximity and construction site size.

As shown in Table 6, during construction of the Project, maximum daily localized unmitigated emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ from sources on the Project Site would remain below each of the respective LST values. Unmitigated maximum daily localized emissions would not exceed any of the localized standards for receptors that are within 25 meters of the Project's construction activities. Therefore, based on SCAQMD guidance, localized emissions of criteria pollutants would not have the potential to expose sensitive receptors to substantial concentrations that would present a public health concern.

The primary TAC that would be generated by construction activities is diesel PM, which would be released from the exhaust of mobile construction equipment. The construction emissions modeling conservatively assumed that all equipment present on the Project Site would be operating simultaneously throughout most of the day, though this would rarely be the case. Daily emissions of diesel PM would be negligible throughout the course of Project construction. Therefore, the magnitude of daily diesel PM emissions, would not be sufficient to result in substantial pollutant concentrations at off-site locations nearby.

Furthermore, according to SCAQMD methodology, health risks 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 TACs over a 30-year period will contract cancer based on the use of standard risk-assessment methodology. The entire duration of construction activities associated with implementation of the Project is anticipated to be approximately 16 months, and the magnitude of diesel PM emissions will vary over this time period. No residual emissions and corresponding individual cancer risk are anticipated after construction. Because there is such a short-term exposure period, construction TAC emissions would result in a less than significant impact. Therefore, construction of the Project would not expose sensitive receptors to substantial diesel PM concentrations, and this impact would be less than significant.

Operation

The Project Site would be redeveloped with multi-family residences, a land use that is not typically associated with TAC emissions. Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes (e.g., chrome plating, electrical manufacturing, petroleum refinery). The Project would not include these types of potential industrial manufacturing process sources. It is expected that quantities of hazardous TACs generated on-site (e.g., cleaning solvents, paints, landscape pesticides) for the types of proposed land uses would be below thresholds warranting further study under California Accidental Release Program.

When considering potential air quality impacts under CEQA, consideration is given to the location of sensitive receptors within close proximity of land uses that emit TACs. CARB has published and adopted the Air Quality and Land Use Handbook: A Community Health Perspective, which provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities).[36] The SCAQMD adopted similar recommendations in its Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.[37] Together, CARB and SCAQMD guidelines recommend siting distances for both the development of sensitive land uses in proximity to TAC sources and the addition of new TAC sources in proximity to existing sensitive land uses.

The primary sources of potential air toxics associated with Project operations include DPM from delivery trucks (e.g., truck traffic on local streets and idling on adjacent streets). However, these activities, and the land uses associated with the Project, are not considered land uses that generate substantial TAC emissions. It should be noted that the SCAQMD recommends that health risk assessments (HRAs) be conducted for substantial individual sources of DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions.[38] Based on this guidance, the Project would not include these types of land uses and is not considered to be a substantial source of DPM warranting a refined HRA since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. In addition, CARB-mandated airborne toxic control measures (ATCM) limits diesel-fueled commercial vehicles (delivery trucks) to idle for no more than five minutes at any given time, which would further limit diesel particulate emissions.

As the Project would not contain substantial TAC sources and is consistent with the CARB and SCAQMD guidelines, the Project would not result in the exposure of off-site sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of ten in one million or an acute or chronic hazard index of 1.0, and potential TAC impacts would be less than significant.

The Project would generate long-term emissions on-site from area and energy sources that would generate negligible pollutant concentrations of CO, NO_2, $PM_{2.5}$, or PM_{10} at nearby sensitive receptors. While long-term operations of the Project would add traffic to local roads that produces off-site emissions, these would not result in exceedances of CO air quality standards at roadways in the area due to three key factors. First, CO hotspots are extremely rare and only occur in the presence of unusual atmospheric conditions and extremely cold conditions, neither of which applies to this Project area. Second, auto-related emissions of CO continue to decline because of advances in fuel combustion technology in the vehicle fleet. Finally, the Project would not contribute to the levels of congestion that would be needed to produce emissions concentrations needed to trigger a CO hotspot, as it would add 446 vehicle trips to local roadways and the region's air quality airshed on a weekday at the start of

[36] California Air Resources Board, Air Quality and Land Use Handbook, a Community Health Perspective, April 2005.

[37] South Coast Air Quality Management District, Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning, May 6, 2005.

[38] South Coast Air Quality Management District, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, 2002.

operations in 2027.[39] The majority of vehicle-related impacts at the Project Site would come from 30 and 35 vehicles entering and exiting the development during the peak A.M. and P.M. hours, respectively.[40] This would represent a small addition to traffic volumes on local roadways. For example, it would represent 1.5 percent of the 29,718 average daily vehicles that used Avalon Boulevard at Carson Street in 2018.[41] Even with the contribution of the Project's traffic, this intersection would carry daily vehicle volumes well below the traffic volumes that would be needed to generate CO exceedances of the ambient air quality standard.[42]

Finally, the Project would not result in any substantial emissions of TACs during the construction or operations phase. During the construction phase, the primary air quality impacts would be associated with the combustion of diesel fuels, which produce exhaust-related particulate matter that is considered a toxic air contaminant by CARB based on chronic exposure to these emissions.[43] However, construction activities would not produce chronic, long-term exposure to diesel particulate matter. During long-term project operations, the Project does not include typical sources of acutely and chronically hazardous TACs such as industrial manufacturing processes and automotive repair facilities. As a result, the Project would not create substantial concentrations of TACs.

In addition, the SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[44] The Project would not generate a substantial number of truck trips. Based on the limited activity of TAC sources, the Project would not warrant the need for a health risk assessment associated with on-site activities. Therefore, the Project's operational impacts on local sensitive receptors would be less than significant.

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

Less Than Significant Impact. The Project would not result in activities that create objectionable odors. The Project is a housing development that would not include any activities typically associated with unpleasant odors and local nuisances (e.g., rendering facilities, dry cleaners). SCAQMD regulations that govern nuisances (i.e., Rule 402, Nuisances) would regulate any intermittent odors associated with residences. As a result, any odor impacts from the Project would be considered less than significant.

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39 Fehr & Peers, Draft Memorandum; 21611 Perry Street Residential Project Non-CEQA Trip Generation Comparison; July 29, 2024.

40 Ibid

41 City of Carson Traffic Count Map, 2018; https://ci.carson.ca.us/content/files/pdfs/BusinessDev/demographics/Traffic_Count_Map.pdf .

42 South Coast Air Quality Management District; 2003 AQMP. As discussed in the 2003 AQMP, the 1992 CO Plan included a CO hotspot analysis at four intersections in the peak A.M. and P.M. time periods, including Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection was Wilshire and Veteran, used by 100,000 vehicles per day. The 2003 AQMP estimated a 4.6 ppm one-hour concentration at this intersection, which meant that an exceedance (20 ppm) would not occur until daily traffic exceeded more than 400,000 vehicles per day.

43 California Office of Environmental Health Hazard Assessment. Health Effects of Diesel Exhaust. www. http://oehha.ca.gov/public_info/facts/dieselfacts.html

44 South Coast Air Quality Management District, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions, December 2002.

TECHNICAL APPENDIX

DouglasKim+Associates,LLC

FUTURE EMISSIONS

21611 Perry Street (Future) Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	21611 Perry Street (Future)
Construction Start Date	5/1/2025
Operational Year	2027
Lead Agency	City of Carson
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	17.4
Location	21611 S Perry St, Carson, CA 90745, USA
County	Los Angeles-South Coast
City	Carson
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4622
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	62.0	Dwelling Unit	2.55	134,196	28,853	—	213	—

Parking Lot	28.0	Space	0.25	0.00	218	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	6.35	16.1	16.5	0.03	0.67	3.37	4.03	0.61	1.50	2.11
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	6.53	17.3	23.7	0.04	0.68	3.37	4.03	0.62	1.50	2.11
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	3.32	7.76	10.9	0.02	0.27	0.54	0.75	0.24	0.21	0.37
Annual (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	0.61	1.42	1.98	< 0.005	0.05	0.10	0.14	0.04	0.04	0.07

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—
2025	1.57	16.1	15.9	0.03	0.67	3.37	4.03	0.61	1.50	2.11
2026	6.35	11.4	16.5	0.03	0.39	0.76	1.14	0.35	0.18	0.53

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—
2025	2.21	17.3	23.7	0.04	0.68	3.37	4.03	0.62	1.50	2.11
2026	6.53	16.5	23.3	0.04	0.61	0.84	1.45	0.56	0.20	0.76
Average Daily	—	—	—	—	—	—	—	—	—	—
2025	0.48	4.33	4.93	0.01	0.17	0.54	0.72	0.16	0.21	0.37
2026	3.32	7.76	10.9	0.02	0.27	0.48	0.75	0.24	0.11	0.36
Annual	—	—	—	—	—	—	—	—	—	—
2025	0.09	0.79	0.90	< 0.005	0.03	0.10	0.13	0.03	0.04	0.07
2026	0.61	1.42	1.98	< 0.005	0.05	0.09	0.14	0.04	0.02	0.07

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	4.82	1.23	15.4	0.03	0.04	2.69	2.73	0.03	0.68	0.72
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	4.50	1.29	11.0	0.03	0.04	2.69	2.72	0.03	0.68	0.71
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	4.55	1.20	12.5	0.03	0.04	2.37	2.41	0.03	0.60	0.63
Annual (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	0.83	0.22	2.27	0.01	0.01	0.43	0.44	0.01	0.11	0.12

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	1.40	1.01	11.8	0.03	0.02	2.68	2.70	0.02	0.68	0.70
Area	3.41	0.03	3.52	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Energy	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Water	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—
Refrig.	—	—	—	—	—	—	—	—	—	—
Vegetation	< 0.005	0.01	—	< 0.005	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005
Total	4.82	1.23	15.4	0.03	0.04	2.69	2.73	0.03	0.68	0.72
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	1.38	1.10	10.9	0.03	0.02	2.68	2.70	0.02	0.68	0.70
Area	3.10	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Energy	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Water	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—
Refrig.	—	—	—	—	—	—	—	—	—	—
Vegetation	< 0.005	0.01	—	< 0.005	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005
Total	4.50	1.29	11.0	0.03	0.04	2.69	2.72	0.03	0.68	0.71
Average Daily	—	—	—	—	—	—	—	—	—	—
Mobile	1.22	0.99	9.97	0.02	0.02	2.37	2.38	0.01	0.60	0.62
Area	3.32	0.02	2.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Energy	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Water	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—
Refrig.	—	—	—	—	—	—	—	—	—	—
Vegetation	< 0.005	0.01	—	< 0.005	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005
Total	4.55	1.20	12.5	0.03	0.04	2.37	2.41	0.03	0.60	0.63

Annual	—	—	—	—	—	—	—	—	—	—
Mobile	0.22	0.18	1.82	< 0.005	< 0.005	0.43	0.43	< 0.005	0.11	0.11
Area	0.61	< 0.005	0.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Energy	< 0.005	0.03	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Water	—	—	—	—	—	—	—	—	—	—
Waste	—	—	—	—	—	—	—	—	—	—
Refrig.	—	—	—	—	—	—	—	—	—	—
Vegetation	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total	0.83	0.22	2.27	0.01	0.01	0.43	0.44	0.01	0.11	0.12

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	10.9	11.0	0.03	0.47	—	0.47	0.43	—	0.43
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.07	0.07
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.62	0.63	< 0.005	0.03	—	0.03	0.02	—	0.02

Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.11	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.52	0.00	0.00	0.10	0.10	0.00	0.02	0.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T

Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59
Dust From Material Movement	—	—	—	—	—	2.77	2.77	—	1.34	1.34
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	14.1	14.5	0.02	0.64	—	0.64	0.59	—	0.59
Dust From Material Movement	—	—	—	—	—	2.77	2.77	—	1.34	1.34
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	1.73	1.79	< 0.005	0.08	—	0.08	0.07	—	0.07
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.16	0.16
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.32	0.33	< 0.005	0.01	—	0.01	0.01	—	0.01
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.03	0.03
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.70	0.00	0.00	0.13	0.13	0.00	0.03	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	1.99	0.71	0.01	0.02	0.47	0.50	0.02	0.13	0.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.59	0.00	0.00	0.13	0.13	0.00	0.03	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	2.07	0.71	0.01	0.02	0.47	0.50	0.02	0.13	0.15
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.26	0.09	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005

3.5. Building Construction (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.24	10.6	11.9	0.02	0.40	—	0.40	0.37	—	0.37
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.15	1.27	1.42	< 0.005	0.05	—	0.05	0.04	—	0.04
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.23	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.21	2.63	0.00	0.00	0.58	0.58	0.00	0.14	0.14
Vendor	0.01	0.25	0.12	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.07	0.07	0.00	0.02	0.02
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	10.1	11.8	0.02	0.36	—	0.36	0.33	—	0.33
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	6.61	7.69	0.02	0.24	—	0.24	0.22	—	0.22
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.21	1.40	< 0.005	0.04	—	0.04	0.04	—	0.04
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.17	2.88	0.00	0.00	0.58	0.58	0.00	0.14	0.14
Vendor	0.01	0.23	0.11	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.19	2.46	0.00	0.00	0.58	0.58	0.00	0.14	0.14
Vendor	0.01	0.24	0.11	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.68	0.00	0.00	0.38	0.38	0.00	0.09	0.09
Vendor	< 0.005	0.16	0.07	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	6.13	8.21	0.01	0.27	—	0.27	0.25	—	0.25
Paving	0.01	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.37	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02
Paving	< 0.005	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Paving	< 0.005	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.88	0.00	0.00	0.20	0.20	0.00	0.05	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Paving (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	5.88	8.19	0.01	0.25	—	0.25	0.23	—	0.23
Paving	0.01	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.36	0.50	< 0.005	0.02	—	0.02	0.01	—	0.01
Paving	< 0.005	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Paving	< 0.005	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.07	0.83	0.00	0.00	0.20	0.20	0.00	0.05	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02
Architectural Coatings	4.84	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02
Architectural Coatings	4.84	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.41	0.54	< 0.005	0.01	—	0.01	0.01	—	0.01
Architectural Coatings	2.31	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Architectural Coatings	0.42	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.58	0.00	0.00	0.12	0.12	0.00	0.03	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—

Worker	0.03	0.04	0.49	0.00	0.00	0.12	0.12	0.00	0.03	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Trenching (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.25	1.43	< 0.005	0.05	—	0.05	0.05	—	0.05
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.40	1.01	11.8	0.03	0.02	2.68	2.70	0.02	0.68	0.70
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	1.40	1.01	11.8	0.03	0.02	2.68	2.70	0.02	0.68	0.70
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	1.38	1.10	10.9	0.03	0.02	2.68	2.70	0.02	0.68	0.70
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.38	1.10	10.9	0.03	0.02	2.68	2.70	0.02	0.68	0.70
Annual	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.22	0.18	1.82	< 0.005	< 0.005	0.43	0.43	< 0.005	0.11	0.11
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.22	0.18	1.82	< 0.005	< 0.005	0.43	0.43	< 0.005	0.11	0.11

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Total	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Total	0.01	0.17	0.07	< 0.005	0.01	—	0.01	0.01	—	0.01
Annual	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	< 0.005	0.03	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Total	< 0.005	0.03	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Consumer Products	2.87	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.31	0.03	3.52	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Total	3.41	0.03	3.52	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Consumer Products	2.87	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—
Total	3.10	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00
Consumer Products	0.52	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005
Total	0.61	< 0.005	0.44	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Parking Lot	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Pinus canariensis	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Afrocarpus	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Washingtonia robusta)	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Olea europaea ssp. europea	> -0.005	> -0.005	—	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Pistacia chinensis	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Platanus	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Ulmus parvifolia	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Filicium decipiens	> -0.005	0.00	—	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Arbutus unedo	> -0.005	0.00	—	< 0.005	0.00	0.00	0.00	0.00	0.00	0.00

Magnolia	> -0.005	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rudgea nobilis	> -0.005	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Sequestered	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	—	—	—	—	—	—	—	—	—	—
Pinus canariensis	—	—	—	—	—	—	—	—	—	—
Afrocarpus	—	—	—	—	—	—	—	—	—	—
Washingtonia robusta)	—	—	—	—	—	—	—	—	—	—
Olea europaea ssp. europea	—	—	—	—	—	—	—	—	—	—
Pistacia chinensis	—	—	—	—	—	—	—	—	—	—
Platanus	—	—	—	—	—	—	—	—	—	—
Ulmus parvifolia	—	—	—	—	—	—	—	—	—	—
Filicium decipiens	—	—	—	—	—	—	—	—	—	—
Arbutus unedo	—	—	—	—	—	—	—	—	—	—
Magnolia	—	—	—	—	—	—	—	—	—	—
Rudgea nobilis	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	—	0.01	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Pinus canariensis	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Afrocarpus	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Washingtonia robusta)	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Olea europaea ssp. europea	—	> -0.005	—	> -0.005	0.00	0.00	0.00	0.00	0.00	0.00
Pistacia chinensis	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Platanus	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ulmus parvifolia	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Filicium decipiens	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arbutus unedo	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Magnolia	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rudgea nobilis	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	—	0.01	—	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005
—	—	—	—	—	—	—	—	—	—	—
Total	< 0.005	0.01	—	< 0.005	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Pinus canariensis	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Afrocarpus	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Washingtonia robusta)	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Olea europaea ssp. europea	> -0.005	> -0.005	—	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Pistacia chinensis	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Platanus	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Ulmus parvifolia	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Filicium decipiens	> -0.005	0.00	—	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005

Arbutus unedo	> -0.005	0.00	—	< 0.005	0.00	0.00	0.00	0.00	0.00	0.00
Magnolia	> -0.005	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rudgea nobilis	> -0.005	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005
Sequestered	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	—	—	—	—	—	—	—	—	—	—
Pinus canariensis	—	—	—	—	—	—	—	—	—	—
Afrocarpus	—	—	—	—	—	—	—	—	—	—
Washingtonia robusta)	—	—	—	—	—	—	—	—	—	—
Olea europaea ssp. europea	—	—	—	—	—	—	—	—	—	—
Pistacia chinensis	—	—	—	—	—	—	—	—	—	—
Platanus	—	—	—	—	—	—	—	—	—	—
Ulmus parvifolia	—	—	—	—	—	—	—	—	—	—
Filicium decipiens	—	—	—	—	—	—	—	—	—	—
Arbutus unedo	—	—	—	—	—	—	—	—	—	—
Magnolia	—	—	—	—	—	—	—	—	—	—
Rudgea nobilis	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	—	0.01	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Pinus canariensis	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Afrocarpus	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Washingtonia robusta)	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Olea europaea ssp. europea	—	> -0.005	—	> -0.005	0.00	0.00	0.00	0.00	0.00	0.00
Pistacia chinensis	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Platanus	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ulmus parvifolia	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Filicium decipiens	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arbutus unedo	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Magnolia	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rudgea nobilis	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	—	0.01	—	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005
—	—	—	—	—	—	—	—	—	—	—
Total	< 0.005	0.01	—	< 0.005	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005
Annual	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Pinus canariensis	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Afrocarpus	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Washingtonia robusta)	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Olea europaea ssp. europea	> -0.005	> -0.005	—	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Pistacia chinensis	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Platanus	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Ulmus parvifolia	> -0.005	0.00	—	0.00	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Filicium decipiens	> -0.005	0.00	—	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005	> -0.005
Arbutus unedo	> -0.005	0.00	—	< 0.005	0.00	0.00	0.00	0.00	0.00	0.00

Magnolia	> -0.005	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rudgea nobilis	> -0.005	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Sequestered	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	—	—	—	—	—	—	—	—	—	—
Pinus canariensis	—	—	—	—	—	—	—	—	—	—
Afrocarpus	—	—	—	—	—	—	—	—	—	—
Washingtonia robusta)	—	—	—	—	—	—	—	—	—	—
Olea europaea ssp. europea	—	—	—	—	—	—	—	—	—	—
Pistacia chinensis	—	—	—	—	—	—	—	—	—	—
Platanus	—	—	—	—	—	—	—	—	—	—
Ulmus parvifolia	—	—	—	—	—	—	—	—	—	—
Filicium decipiens	—	—	—	—	—	—	—	—	—	—
Arbutus unedo	—	—	—	—	—	—	—	—	—	—
Magnolia	—	—	—	—	—	—	—	—	—	—
Rudgea nobilis	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—
Cupaniopsis anacardioides	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Pinus canariensis	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Afrocarpus	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Washingtonia robusta)	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Olea europaea ssp. europea	—	> -0.005	—	> -0.005	0.00	0.00	0.00	0.00	0.00	0.00
Pistacia chinensis	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Platanus	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ulmus parvifolia	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Filicium decipiens	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arbutus unedo	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Magnolia	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rudgea nobilis	—	> -0.005	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal	—	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
—	—	—	—	—	—	—	—	—	—	—
Total	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	8/1/2025	8/31/2025	5.00	21.0	—
Grading	Grading	9/1/2025	10/31/2025	5.00	45.0	—
Building Construction	Building Construction	11/1/2025	11/30/2026	5.00	281	—
Paving	Paving	12/1/2025	1/31/2026	5.00	45.0	—
Architectural Coating	Architectural Coating	4/1/2026	11/30/2026	5.00	174	—
Trenching	Trenching	11/1/2026	11/30/2026	5.00	21.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Trenchers	Diesel	Average	1.00	8.00	40.0	0.50

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—

Site Preparation	Worker	7.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	12.8	40.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	44.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	6.63	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	8.93	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	2.50	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT

Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	271,747	90,582	0.00	0.00	659

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	31.5	0.00	—
Grading	4,590	—	45.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.25

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Parking Lot	0.25	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	349	0.03	< 0.005
2026	0.00	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	446	304	254	145,479	3,780	2,578	2,147	1,231,999
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	62
Conventional Wood Stoves	0
Catalytic Wood Stoves	0

Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
271746.89999999997	90,582	0.00	0.00	659

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	227,282	346	0.0330	0.0040	688,624
Parking Lot	9,616	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	2,310,976	494,574
Parking Lot	0.00	3,057

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	53.2	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
Olea europaea ssp. europea	1.00	2,270	11.0
Pistacia chinensis	1.00	1,957	-9.00
Platanus	1.00	2,372	-16.0
Ulmus parvifolia	1.00	1,933	-14.0
Filicium decipiens	1.00	2,060	10.0
Ulmus parvifolia	1.00	2,876	-8.00
Arbutus unedo	1.00	360	-54.0

Magnolia	1.00	1,293	-14.0
Rudgea nobilis	1.00	940	3.00
Arbutus unedo	1.00	2,675	-13.0
Cupaniopsis anacardioides	-6.00	12,986	64.0
Pinus canariensis	-1.00	2,923	15.0
Afrocarpus	-1.00	2,923	15.0
Pinus canariensis	-1.00	2,923	15.0
Cupaniopsis anacardioides	-1.00	2,857	14.0
Cupaniopsis anacardioides	-1.00	2,923	15.0
Cupaniopsis anacardioides	-5.00	12,388	62.0
Cupaniopsis anacardioides	-1.00	2,668	13.0
Cupaniopsis anacardioides	-1.00	2,923	15.0
Washingtonia robusta)	-1.00	823	3.00
Pinus canariensis	-1.00	2,923	15.0
Cupaniopsis anacardioides	-3.00	8,197	42.0
Cupaniopsis anacardioides	-3.00	8,770	45.0
Washingtonia robusta)	-1.00	934	3.00
Washingtonia robusta)	-1.00	1,026	4.00
Cupaniopsis anacardioides	-1.00	2,923	15.0
Cupaniopsis anacardioides	-1.00	1,673	8.00
Cupaniopsis anacardioides	-1.00	2,792	14.0
Cupaniopsis anacardioides	-1.00	2,792	14.0
Cupaniopsis anacardioides	-1.00	2,002	10.0
Cupaniopsis anacardioides	-1.00	2,368	12.0
Cupaniopsis anacardioides	-1.00	2,544	12.0
Cupaniopsis anacardioides	-1.00	2,537	12.0

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.08	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

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

6.3. Adjusted Climate Risk Scores

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

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	22.2
AQ-PM	82.0

AQ-DPM	57.6
Drinking Water	29.4
Lead Risk Housing	47.8
Pesticides	0.00
Toxic Releases	98.7
Traffic	92.7
Effect Indicators	—
CleanUp Sites	96.4
Groundwater	95.4
Haz Waste Facilities/Generators	97.1
Impaired Water Bodies	93.4
Solid Waste	59.4
Sensitive Population	—
Asthma	57.0
Cardio-vascular	52.3
Low Birth Weights	61.0
Socioeconomic Factor Indicators	—
Education	57.5
Housing	16.9
Linguistic	47.7
Poverty	34.9
Unemployment	77.8

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	68.72834595

Employed	38.86821506
Median HI	73.48902862
Education	—
Bachelor's or higher	54.65161042
High school enrollment	100
Preschool enrollment	69.40844347
Transportation	—
Auto Access	53.75336841
Active commuting	16.07853202
Social	—
2-parent households	26.98575645
Voting	48.32542025
Neighborhood	—
Alcohol availability	24.57333504
Park access	47.69665084
Retail density	92.83972796
Supermarket access	19.2865392
Tree canopy	32.9013217
Housing	—
Homeownership	73.93814962
Housing habitability	67.17567047
Low-inc homeowner severe housing cost burden	55.89631721
Low-inc renter severe housing cost burden	50.51969716
Uncrowded housing	36.46862569
Health Outcomes	—
Insured adults	53.31707943
Arthritis	51.7
Asthma ER Admissions	31.1

High Blood Pressure	28.2
Cancer (excluding skin)	42.8
Asthma	83.3
Coronary Heart Disease	54.4
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	25.3
Life Expectancy at Birth	25.7
Cognitively Disabled	20.1
Physically Disabled	28.8
Heart Attack ER Admissions	33.0
Mental Health Not Good	71.0
Chronic Kidney Disease	45.1
Obesity	64.2
Pedestrian Injuries	72.7
Physical Health Not Good	57.2
Stroke	39.4
Health Risk Behaviors	—
Binge Drinking	87.8
Current Smoker	70.9
No Leisure Time for Physical Activity	49.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	73.7
Elderly	30.4
English Speaking	48.2
Foreign-born	66.2
Outdoor Workers	39.0

Climate Change Adaptive Capacity	—
Impervious Surface Cover	17.2
Traffic Density	90.8
Traffic Access	23.0
Other Indices	—
Hardship	56.1
Other Decision Support	—
2016 Voting	17.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	79.0
Healthy Places Index Score for Project Location (b)	57.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification

Land Use	Population forecast based on 2045 forecast of 3.43 persons per dwelling unit, per Southern California Association of Governments, 2020-2045 Regional Transportation Plan, Demographics and Growth Forecast Technical Report; September 3, 2020.
Construction: Construction Phases	—
Construction: Off-Road Equipment	b
Construction: Trips and VMT	Assumes 14 cy haul truck capacity
Operations: Vehicle Data	Daily weekday rate per ITE Trip Generation manual 11th edition (ITE Land Use Code 215)
Operations: Hearths	—

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MATES V TOXIC EMISSIONS OVERVIEW

About Air Toxics Cancer Risk

Information about community profile statistics
Information about emission sources
Download PDF

Residential Air Toxics Cancer Risk at MATES Monitoring Sites

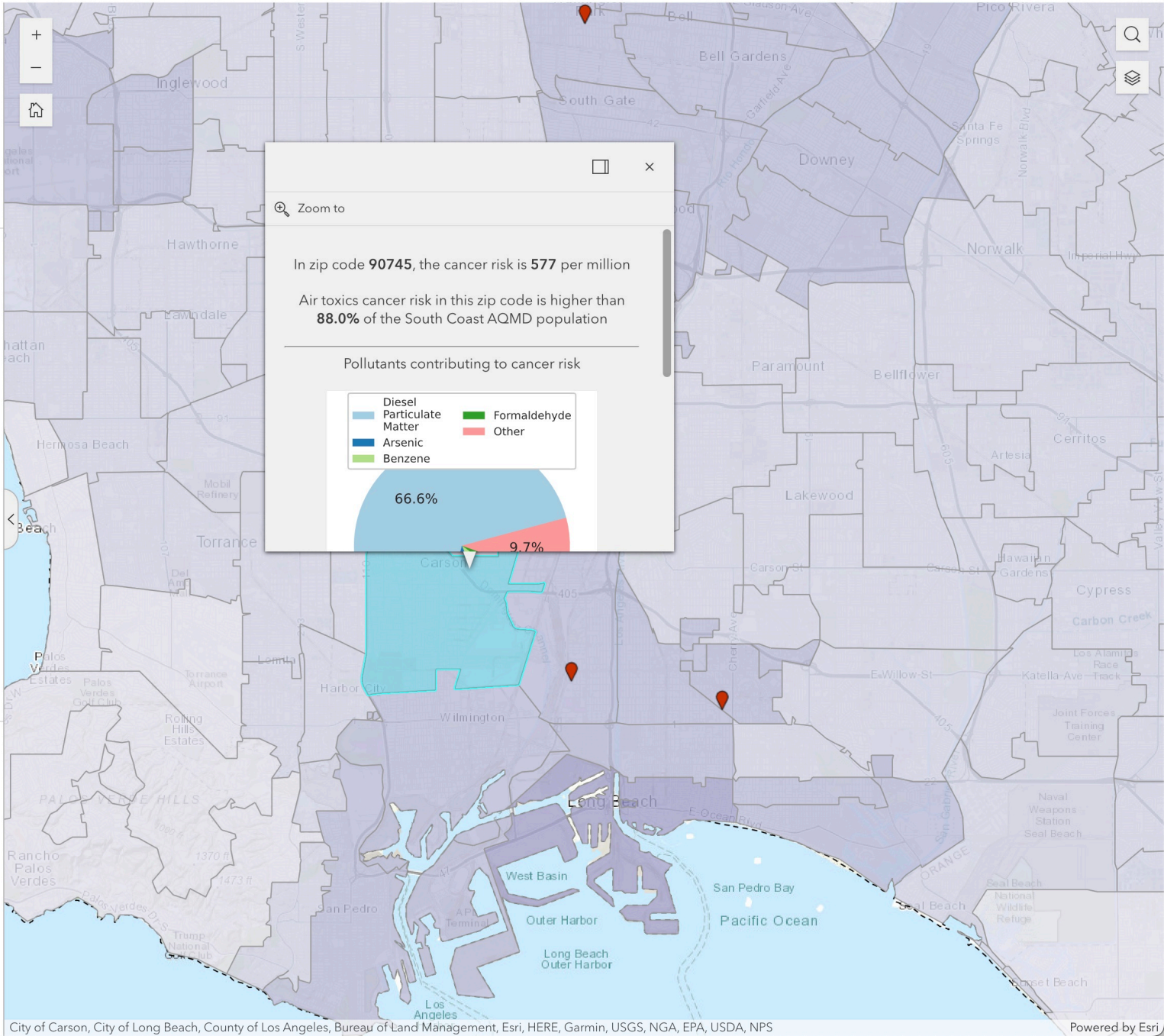
Residential Air Toxics Cancer Risk Calculated from Model Data

Cancer Risk [per million]

- 1601 - 4800
- 1451 - 1600
- 1301 - 1450
- 1151 - 1300
- 1001 - 1150
- 851 - 1000
- 701 - 850
- 551 - 700
- 401 - 550
- 251 - 400
- 101 - 250
- 0 - 100

South Coast AQMD Boundary

The air toxics cancer risk data presented in the MATES Data Visualization is calculated using a population-weighted average.



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CALENVIROSCREEN 4.0 OUTPUT

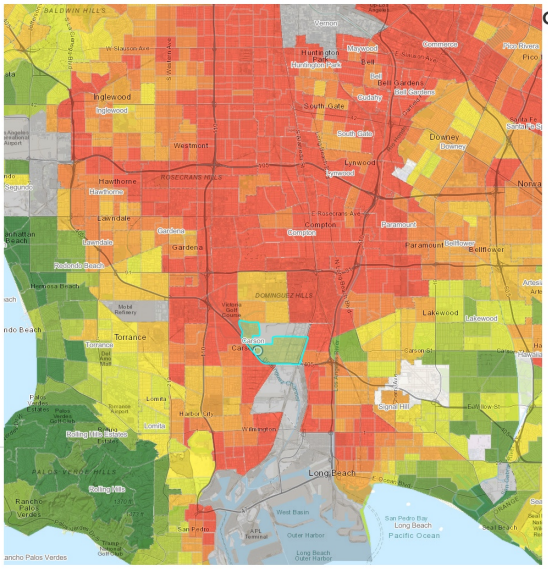
Calenvior

Legend

CalEnviroScreen 4.0 Results

- > 90 – 100 (Highest Scores)
- > 80 – 90
- > 70 – 80
- > 60 – 70
- > 50 – 60
- > 40 – 50
- > 30 – 40
- > 20 – 30
- > 10 – 20
- 0 – 10 (Lowest Scores)

CalEnviroScreen 4.0 High Pollution, Low Population



Census Tract: 6037543306 (Population: 7,863)

The results for each indicator range from 0-100 and represent the percentile ranking of census tract 6037543306 relative to other census tracts.

Overall Percentiles	
CalEnviroScreen 4.0 Percentile	79
Pollution Burden Percentile	96
Population Characteristics Percentile	53

Exposures	
Ozone	22
Particulate Matter 2.5	82
Diesel Particulate Matter	58
Toxic Releases	99
Traffic	93
Pesticides	0
Drinking Water	29
Lead from Housing	48

Environmental Effects	
Cleanup Sites	96
Groundwater Threats	95
Hazardous Waste	97
Impaired Waters	93
Solid Waste	59

Sensitive Populations	
Asthma	57
Low Birth Weight	61
Cardiovascular Disease	52

Socioeconomic Factors	
Education	58
Linguistic Isolation	48
Poverty	35
Unemployment	78
Housing Burden	17

Race/Ethnicity Profiles

Hover your mouse over the pie chart segment to see the race/ethnicity in percentages and approximate counts.

Age Profiles

Hover your mouse over the pie chart segment to see the age characteristics in percentages and approximate counts.

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TREE SEQUESTRATION CALCULATIONS

Project Report - i-Tree Planting Calculator

Location: Carson, California 90745
Total number of trees planted in this project: 36
Electricity Emissions Factor: 252.40 kilograms CO2 equivalent/MWh
Fuel Emissions Factor: 52.00 kilograms CO2 equivalent/MMBtu
Lifetime: 40 years
Annual Tree Mortality: 3%

All amounts in the tables are for the full lifetime of the project.

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
1	• 6 Carrotwood(Cupaniopsis anacardioides) trees of 3 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	6	18.5	65.3	1.8	3.4	1,017.0	3.8
2	• 1 Canary island pine(Pinus canariensis) tree of 18.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	39.9	83.0	0.30	2.6	525.8	1.8
3	• 1 Afrocarpus spp(Afrocarpus) tree of 11.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	41.1	77.3	0.30	2.8	452.9	1.7
4	• 1 Canary island pine(Pinus canariensis) tree of 16 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	37.4	83.0	0.30	2.3	493.8	1.6

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
5	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 10.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	65.7	0.30	0.58	257.3	0.6
6	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	65.7	0.30	0.58	271.6	0.7
7	• 5 Carrotwood(Cupaniopsis anacardioides) trees of 6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	5	18.6	65.5	1.5	2.9	1,043.1	3.2
8	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	65.6	0.30	0.58	237.0	0.6

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
9	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.8	65.8	0.30	0.59	294.5	0.7
10	• 1 Mexican fan palm(Washingtonia robusta) tree of 13.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	48.0	47.6	0.30	3.8	910.3	0.4
11	• 1 Canary island pine(Pinus canariensis) tree of 14.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	36.3	83.0	0.30	2.2	480.7	1.5
12	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 9.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	18.7	65.6	0.91	1.7	743.4	1.9

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
13	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 14 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	18.8	65.8	0.91	1.8	880.4	2.0
14	• 1 Mexican fan palm(Washingtonia robusta) tree of 18.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	49.7	49.1	0.30	4.1	962.2	0.4
15	• 1 Mexican fan palm(Washingtonia robusta) tree of 20.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	50.4	49.7	0.30	4.2	983.7	0.4
16	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.8	65.8	0.30	0.59	294.5	0.7

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
17	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	16.8	61.8	0.30	0.47	221.1	0.5
18	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	65.6	0.30	0.58	248.9	0.6
19	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	65.6	0.30	0.58	248.9	0.6
20	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 12.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	17.6	63.4	0.30	0.51	263.8	0.6

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
21	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in poor condition and planted in full sun.	1	18.4	65.0	0.30	0.56	268.9	0.6
22	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 7.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.6	65.5	0.30	0.58	221.4	0.6
23	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 6.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.6	65.5	0.30	0.58	214.5	0.6
Total		36			**11**	**38.7**	**11,535.7**	**26.2**

Location			CO_2 (Carbon Dioxide) Benefits			
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**CO_2 (Carbon Dioxide) Avoided (pounds)**	**CO_2 Avoided ($)**	**CO_2 Sequestered (pounds)**	**CO_2 Sequestered ($)**
1	• 6 Carrotwood(Cupaniopsis anacardioides) trees of 3 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	6	15,283.4	$355.44	28,605.9	$665.29
2	• 1 Canary island pine(Pinus canariensis) tree of 18.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,534.5	$82.20	9,657.1	$224.59
3	• 1 Afrocarpus spp(Afrocarpus) tree of 11.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,533.4	$82.18	10,135.2	$235.71
4	• 1 Canary island pine(Pinus canariensis) tree of 16 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,534.5	$82.20	8,621.0	$200.50
5	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 10.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,449.9	$80.23	4,438.6	$103.23
6	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,534.5	$82.20	4,016.5	$93.41
7	• 5 Carrotwood(Cupaniopsis anacardioides) trees of 6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	5	14,674.4	$341.28	24,780.8	$576.32
8	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,201.7	$74.46	4,797.8	$111.58
9	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,534.5	$82.20	3,036.2	$70.61
10	• 1 Mexican fan palm(Washingtonia robusta) tree of 13.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	881.9	$20.51	2,336.4	$54.34
11	• 1 Canary island pine(Pinus canariensis) tree of 14.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,534.5	$82.20	8,189.6	$190.46
12	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 9.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	9,868.5	$229.51	13,911.2	$323.53

Location			CO_2 (Carbon Dioxide) Benefits			
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**CO_2 (Carbon Dioxide) Avoided (pounds)**	**CO_2 Avoided ($)**	**CO_2 Sequestered (pounds)**	**CO_2 Sequestered ($)**
13	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 14 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	10,603.4	$246.60	9,255.2	$215.25
14	• 1 Mexican fan palm(Washingtonia robusta) tree of 18.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	997.6	$23.20	2,501.0	$58.17
15	• 1 Mexican fan palm(Washingtonia robusta) tree of 20.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	1,107.0	$25.74	2,553.0	$59.38
16	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,534.5	$82.20	3,036.2	$70.61
17	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	1,993.6	$46.36	2,811.6	$65.39
18	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,365.1	$78.26	4,618.2	$107.41
19	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,365.1	$78.26	4,618.2	$107.41
20	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 12.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	2,421.1	$56.31	2,515.4	$58.50
21	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in poor condition and planted in full sun.	1	2,862.9	$66.58	3,371.8	$78.42
22	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 7.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,032.7	$70.53	4,927.0	$114.59
23	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 6.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	3,016.0	$70.14	4,951.4	$115.16
Total		36	**104,864.5**	**$2,438.83**	**167,685.4**	**$3,899.85**

Location			Energy Benefits			
Group Identifier	Tree Group Characteristics	Initial Number of Trees	Electricity Saved (kWh) (Kilowatt-Hours)	Electricity Saved ($)	Fuel Saved (MMBtu) (Millions of British Thermal Units)	Fuel Saved ($)
1	• 6 Carrotwood(Cupaniopsis anacardioides) trees of 3 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	6	12,986.1	$2,658.25	64.1	$830.07
2	• 1 Canary island pine(Pinus canariensis) tree of 18.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.5	$598.44	15.3	$197.45
3	• 1 Afrocarpus spp(Afrocarpus) tree of 11.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.1	$598.35	15.3	$197.37
4	• 1 Canary island pine(Pinus canariensis) tree of 16 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.5	$598.44	15.3	$197.45
5	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 10.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,857.7	$584.97	14.9	$192.44
6	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.5	$598.44	15.3	$197.45
7	• 5 Carrotwood(Cupaniopsis anacardioides) trees of 6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	5	12,388.1	$2,535.85	62.0	$802.54
8	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,668.0	$546.15	13.7	$177.50

Location			Energy Benefits			
Group Identifier	Tree Group Characteristics	Initial Number of Trees	Electricity Saved (kWh) (Kilowatt-Hours)	Electricity Saved ($)	Fuel Saved (MMBtu) (Millions of British Thermal Units)	Fuel Saved ($)
9	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.5	$598.44	15.3	$197.45
10	• 1 Mexican fan palm(Washingtonia robusta) tree of 13.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	823.9	$168.64	3.3	$42.77
11	• 1 Canary island pine(Pinus canariensis) tree of 14.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.5	$598.44	15.3	$197.45
12	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 9.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	8,197.4	$1,678.01	42.4	$548.92
13	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 14 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	8,770.5	$1,795.33	45.8	$592.36
14	• 1 Mexican fan palm(Washingtonia robusta) tree of 18.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	934.0	$191.20	3.7	$48.23
15	• 1 Mexican fan palm(Washingtonia robusta) tree of 20.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	1,026.2	$210.07	4.2	$54.22
16	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,923.5	$598.44	15.3	$197.45

Location			Energy Benefits			
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**Electricity Saved (kWh) (Kilowatt-Hours)**	**Electricity Saved ($)**	**Fuel Saved (MMBtu) (Millions of British Thermal Units)**	**Fuel Saved ($)**
17	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	1,673.6	$342.59	8.5	$109.68
18	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,792.8	$571.68	14.5	$187.35
19	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,792.8	$571.68	14.5	$187.35
20	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 12.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	2,002.6	$409.93	10.5	$135.26
21	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in poor condition and planted in full sun.	1	2,368.0	$484.74	12.4	$159.94
22	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 7.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,544.1	$520.79	12.9	$166.96
23	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 6.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,537.1	$519.34	12.8	$165.57
Total		36	**87,827.1**	**$17,978.21**	**446.9**	**$5,783.26**

Location			Hydrological Benefits				
Group Identifier	Tree Group Characteristics	Initial Number of Trees	Rainfall Interception (gallons)	Evaporation (gallons)	Transpiration (gallons)	Runoff Avoided (gallons)	Runoff Avoided ($)
1	• 6 Carrotwood(Cupaniopsis anacardioides) trees of 3 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	6	48,454.8	48,454.7	262,321.6	18,216.3	$162.78
2	• 1 Canary island pine(Pinus canariensis) tree of 18.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	26,507.1	26,507.0	143,502.5	9,965.2	$89.05
3	• 1 Afrocarpus spp(Afrocarpus) tree of 11.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	20,187.6	20,187.5	109,290.1	7,589.4	$67.82
4	• 1 Canary island pine(Pinus canariensis) tree of 16 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	24,388.0	24,388.0	132,030.4	9,168.6	$81.93
5	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 10.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	16,156.0	16,155.9	87,464.2	6,073.8	$54.28
6	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	17,458.7	17,458.7	94,517.0	6,563.5	$58.65
7	• 5 Carrotwood(Cupaniopsis anacardioides) trees of 6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	5	57,968.3	57,968.1	313,824.9	21,792.9	$194.74
8	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	14,269.1	14,269.0	77,249.0	5,364.4	$47.94
9	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	19,480.7	19,480.6	105,463.2	7,323.7	$65.44
10	• 1 Mexican fan palm(Washingtonia robusta) tree of 13.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	30,337.2	30,337.1	164,237.6	11,405.1	$101.92
11	• 1 Canary island pine(Pinus canariensis) tree of 14.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	23,603.3	23,603.2	127,782.0	8,873.5	$79.29
12	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 9.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	45,835.0	45,834.8	248,138.3	17,231.4	$153.98

Location			Hydrological Benefits				
Group Identifier	Tree Group Characteristics	Initial Number of Trees	Rainfall Interception (gallons)	Evaporation (gallons)	Transpiration (gallons)	Runoff Avoided (gallons)	Runoff Avoided ($)
13	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 14 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	58,181.8	58,181.6	314,980.9	21,873.2	$195.46
14	• 1 Mexican fan palm(Washingtonia robusta) tree of 18.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	36,594.5	36,594.4	198,112.7	13,757.5	$122.94
15	• 1 Mexican fan palm(Washingtonia robusta) tree of 20.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	39,713.4	39,713.3	214,998.0	14,930.1	$133.42
16	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	19,480.7	19,480.6	105,463.2	7,323.7	$65.44
17	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	4,711.8	4,711.8	25,508.3	1,771.4	$15.83
18	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	15,378.0	15,377.9	83,252.4	5,781.3	$51.66
19	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	15,378.0	15,377.9	83,252.4	5,781.3	$51.66
20	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 12.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	6,153.7	6,153.6	33,314.3	2,313.4	$20.67
21	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in poor condition and planted in full sun.	1	10,525.6	10,525.6	56,983.1	3,957.1	$35.36
22	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 7.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	12,798.3	12,798.3	69,286.8	4,811.5	$43.00
23	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 6.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	12,147.9	12,147.9	65,765.4	4,566.9	$40.81
Total		36	**575,709.3**	**575,707.9**	**3,116,738.2**	**216,435.0**	**$1,934.06**

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
1	• 6 Carrotwood(Cupaniopsis anacardioides) trees of 3 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	6	64.36	1.10	15.99	3.87	1.13	6.85	4.28	0.69	$28.86	$414.10
2	• 1 Canary island pine(Pinus canariensis) tree of 18.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	32.90	0.25	8.03	0.89	0.58	1.55	0.96	0.31	$6.53	$203.62
3	• 1 Afrocarpus spp(Afrocarpus) tree of 11.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	25.20	0.25	6.16	0.89	0.45	1.55	0.96	0.24	$6.53	$156.24
4	• 1 Canary island pine(Pinus canariensis) tree of 16 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	30.82	0.25	7.55	0.89	0.55	1.55	0.96	0.30	$6.53	$192.38

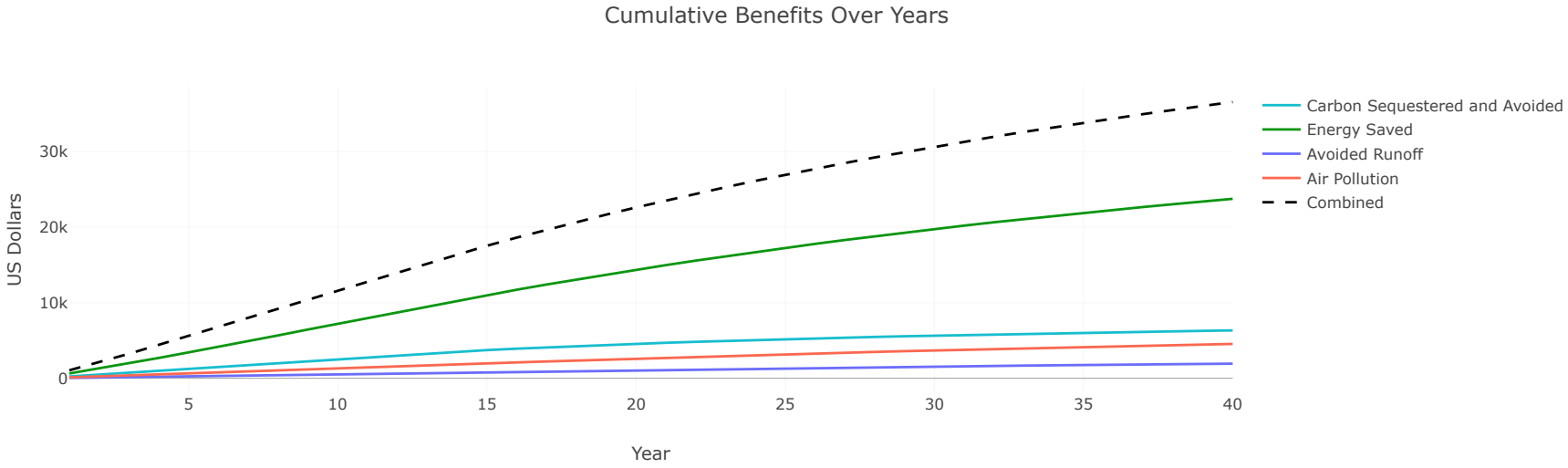
Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
5	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 10.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	20.33	0.25	4.97	0.87	0.36	1.51	0.94	0.19	$6.38	$126.44
6	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	21.67	0.25	5.28	0.89	0.38	1.55	0.96	0.20	$6.53	$133.86
7	• 5 Carrotwood(Cupaniopsis anacardioides) trees of 6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	5	75.47	1.06	18.64	3.71	1.33	6.54	4.09	0.77	$27.56	$478.54
8	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.25	0.23	4.49	0.81	0.32	1.41	0.88	0.18	$5.95	$114.51

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
9	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	23.60	0.25	5.72	0.89	0.42	1.55	0.96	0.21	$6.53	$144.02
10	• 1 Mexican fan palm(Washingtonia robusta) tree of 13.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	29.03	0.06	6.61	0.22	0.53	0.43	0.27	0.17	$1.80	$160.74
11	• 1 Canary island pine(Pinus canariensis) tree of 14.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	29.98	0.25	7.36	0.89	0.53	1.55	0.96	0.29	$6.53	$187.58
12	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 9.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	58.14	0.71	14.26	2.50	1.03	4.34	2.71	0.56	$18.30	$363.16

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
13	• 3 Carrotwood(Cupaniopsis anacardioides) trees of 14 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	3	70.56	0.76	17.10	2.68	1.25	4.64	2.89	0.63	$19.60	$430.84
14	• 1 Mexican fan palm(Washingtonia robusta) tree of 18.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	35.10	0.07	8.00	0.25	0.64	0.49	0.31	0.20	$2.04	$194.46
15	• 1 Mexican fan palm(Washingtonia robusta) tree of 20.4 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	38.11	0.08	8.69	0.28	0.69	0.54	0.34	0.22	$2.24	$211.19
16	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 14.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	23.60	0.25	5.72	0.89	0.42	1.55	0.96	0.21	$6.53	$144.02

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
17	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 8.8 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	11.62	0.14	2.62	0.50	0.21	0.88	0.55	0.06	$3.73	$63.36
18	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	19.49	0.24	4.78	0.85	0.34	1.48	0.92	0.19	$6.24	$121.68
19	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 9.6 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	19.49	0.24	4.78	0.85	0.34	1.48	0.92	0.19	$6.24	$121.68
20	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 12.2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in critical condition and planted in full sun.	1	14.91	0.17	3.34	0.61	0.27	1.06	0.66	0.08	$4.47	$80.76

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
21	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 11.9 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in poor condition and planted in full sun.	1	18.04	0.21	4.22	0.72	0.32	1.25	0.78	0.13	$5.29	$103.85
22	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 7.1 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	16.54	0.22	4.08	0.77	0.29	1.34	0.84	0.17	$5.67	$104.41
23	• 1 Carrotwood(Cupaniopsis anacardioides) tree of 6.5 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	15.76	0.22	3.89	0.76	0.28	1.34	0.84	0.16	$5.65	$99.75
Total		36	**712.98**	**7.54**	**172.27**	**26.54**	**12.69**	**46.40**	**28.97**	**6.34**	**$195.74**	**$4,351.20**



Mortality is modeled as a fractional (not whole) tree estimate and may not align year-over-year.
Sequestration does not account for net differences like decay.
Tree canopy cover estimate assumes no overlap between crowns.

Application v2.7.1, powered by engine v0.16.2 (APIv3) and database v12.0.77.

www.fs.usda.gov
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Version 2.7.1

Project Report - i-Tree Planting Calculator

Location: Carson, California 90745
Total number of trees planted in this project: 15
Electricity Emissions Factor: 252.40 kilograms CO2 equivalent/MWh
Fuel Emissions Factor: 52.00 kilograms CO2 equivalent/MMBtu
Lifetime: 40 years
Annual Tree Mortality: 3%

All amounts in the tables are for the full lifetime of the project.

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
1	• 1 European Olive(Olea europaea ssp. europea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	68.5	0.30	0.58	118.4	0.5
2	• 1 Chinese pistache(Pistacia chinensis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	30.6	60.5	0.30	1.6	429.5	1.5
3	• 1 Sycamore spp(Platanus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	32.7	81.8	0.30	1.8	577.0	0.9

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
4	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	41.3	95.1	0.30	2.8	707.3	3.4
5	• 1 Fern tree(Filicium decipiens) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	32.7	89.4	0.30	1.8	331.1	3.3
6	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	41.3	95.1	0.30	2.8	707.3	3.4

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
8	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	17.6	86.5	0.30	0.51	202.8	0.5
9	• 1 Magnolia spp(Magnolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	30.6	54.4	0.30	1.6	587.5	1.5
10	• 1 Rudgea nobilis(Rudgea nobilis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.5	43.5	0.30	0.57	203.6	0.9

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
11	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	17.6	86.5	0.30	0.51	202.8	0.5
12	• 1 Wilga; australian willow(Geijera parviflora) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.7	23.8	0.30	0.58	140.1	0.7
13	• 1 Guava crape myrtle(Lagerstroemia calyculata) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	32.7	31.8	0.30	1.8	215.7	1.7

Location			Tree Growth					
Group Identifier	Tree Group Characteristics	Initial Number of Trees	DBH (The estimated DBH at the end of the projection) ()	Height (The estimated tree height at the end of the projection) ()	Surviving Trees (The number of trees that survive at the end of the projection based on the mortality rate. The models do estimate fractions of individual trees remaining after mortality for the most precise estimates of the benefits.)	Basal Area (The estimated combined basal area of surviving trees at the end of the projection.) ()	Canopy Cover (The estimated combined crown area of surviving trees at the end of the projection. This combined crown area estimate assumes no overlap between tree crowns and represents the maximum area that these trees could possibly cover.) ()	Biomass (The estimated combined biomass of surviving trees at the end of the projection.) (pounds)
14	• 1 African sumac(Searsia lancea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.5	43.1	0.30	0.57	201.7	0.5
15	• 1 Ttristania spp(Tristania) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	30.6	69.8	0.30	1.6	264.6	2.9
16	• 1 Elaeocarpus spp(Elaeocarpus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	30.6	56.4	0.30	1.6	254.4	2.1
Total		15			**4.6**	**20.6**	**5,143.9**	**24.4**

Location			CO_2 (Carbon Dioxide) Benefits			
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**CO_2 (Carbon Dioxide) Avoided (pounds)**	**CO_2 Avoided ($)**	**CO_2 Sequestered (pounds)**	**CO_2 Sequestered ($)**
1	• 1 European Olive(Olea europaea ssp. europea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,691.6	$62.60	4,076.8	$94.81
2	• 1 Chinese pistache(Pistacia chinensis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	149.6	$3.48	8,623.2	$200.55
3	• 1 Sycamore spp(Platanus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-476.6	$-11.08	5,246.3	$122.01
4	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-428.0	$-9.95	19,314.0	$449.18
5	• 1 Fern tree(Filicium decipiens) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,433.8	$56.60	18,567.0	$431.81
6	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	829.8	$19.30	19,314.0	$449.18
8	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-5,999.1	$-139.52	3,245.2	$75.47
9	• 1 Magnolia spp(Magnolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-847.7	$-19.72	8,817.6	$205.07
10	• 1 Rudgea nobilis(Rudgea nobilis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	979.1	$22.77	7,004.5	$162.90
11	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	71.0	$1.65	3,245.2	$75.47
12	• 1 Wilga; australian willow(Geijera parviflora) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-3,607.3	$-83.90	5,433.1	$126.36
13	• 1 Guava crape myrtle(Lagerstroemia calyculata) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-695.3	$-16.17	9,635.9	$224.10

Location			CO_2 (Carbon Dioxide) Benefits			
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**CO_2 (Carbon Dioxide) Avoided (pounds)**	**CO_2 Avoided ($)**	**CO_2 Sequestered (pounds)**	**CO_2 Sequestered ($)**
14	• 1 African sumac(Searsia lancea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	967.9	$22.51	3,487.6	$81.11
15	• 1 Ttristania spp(Tristania) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-187.4	$-4.36	16,915.1	$393.39
16	• 1 Elaeocarpus spp(Elaeocarpus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-6,481.5	$-150.74	11,985.7	$278.75
Total		15	**-10,600.1**	**$-246.53**	**144,911.4**	**$3,370.20**

Location			Energy Benefits			
Group Identifier	Tree Group Characteristics	Initial Number of Trees	Electricity Saved (kWh) (Kilowatt-Hours)	Electricity Saved ($)	Fuel Saved (MMBtu) (Millions of British Thermal Units)	Fuel Saved ($)
1	• 1 European Olive(Olea europaea ssp. europea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,270.4	$464.76	11.4	$147.33
2	• 1 Chinese pistache(Pistacia chinensis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	1,957.5	$400.70	-9.1	$-118.03
3	• 1 Sycamore spp(Platanus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,372.2	$485.59	-16.8	$-217.28
4	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	1,933.9	$395.87	-14.0	$-181.59
5	• 1 Fern tree(Filicium decipiens) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,060.2	$421.73	10.3	$132.72
6	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,876.7	$588.87	-8.1	$-104.60
8	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	360.0	$73.70	-54.2	$-701.94
9	• 1 Magnolia spp(Magnolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	1,293.6	$264.81	-14.3	$-184.84
10	• 1 Rudgea nobilis(Rudgea nobilis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	940.1	$192.43	3.5	$45.73
11	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,675.6	$547.69	-13.6	$-176.39

Location			Energy Benefits			
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**Electricity Saved (kWh) (Kilowatt-Hours)**	**Electricity Saved ($)**	**Fuel Saved (MMBtu) (Millions of British Thermal Units)**	**Fuel Saved ($)**
12	• 1 Wilga; australian willow(Geijera parviflora) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-526.9	$-107.86	-28.7	$-370.85
13	• 1 Guava crape myrtle(Lagerstroemia calyculata) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	572.4	$117.16	-9.1	$-117.93
14	• 1 African sumac(Searsia lancea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	935.2	$191.44	3.5	$44.80
15	• 1 Ttristania spp(Tristania) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	2,534.2	$518.75	-15.1	$-195.81
16	• 1 Elaeocarpus spp(Elaeocarpus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	-301.2	$-61.66	-54.9	$-710.82
Total		15	**21,954.1**	**$4,494.00**	**-209.4**	**$-2,709.51**

Location			Hydrological Benefits				
Group Identifier	Tree Group Characteristics	Initial Number of Trees	Rainfall Interception (gallons)	Evaporation (gallons)	Transpiration (gallons)	Runoff Avoided (gallons)	Runoff Avoided ($)
1	• 1 European Olive(Olea europaea ssp. europea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	5,962.7	5,962.7	32,280.6	2,241.7	$20.03
2	• 1 Chinese pistache(Pistacia chinensis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	11,207.8	11,207.7	60,675.9	4,213.5	$37.65
3	• 1 Sycamore spp(Platanus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	13,327.0	13,327.0	72,148.8	5,010.2	$44.77
4	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	16,464.2	16,464.2	89,132.8	6,189.6	$55.31
5	• 1 Fern tree(Filicium decipiens) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	8,777.6	8,777.5	47,519.4	3,299.9	$29.49
6	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	16,464.2	16,464.2	89,132.8	6,189.6	$55.31
8	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	7,663.7	7,663.7	41,489.5	2,881.1	$25.75
9	• 1 Magnolia spp(Magnolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	14,201.3	14,201.3	76,882.1	5,338.9	$47.71
10	• 1 Rudgea nobilis(Rudgea nobilis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	8,462.3	8,462.3	45,812.6	3,181.4	$28.43
11	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	7,663.7	7,663.7	41,489.5	2,881.1	$25.75
12	• 1 Wilga; australian willow(Geijera parviflora) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	6,665.3	6,665.3	36,084.1	2,505.8	$22.39
13	• 1 Guava crape myrtle(Lagerstroemia calyculata) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	5,806.2	5,806.2	31,433.1	2,182.8	$19.51

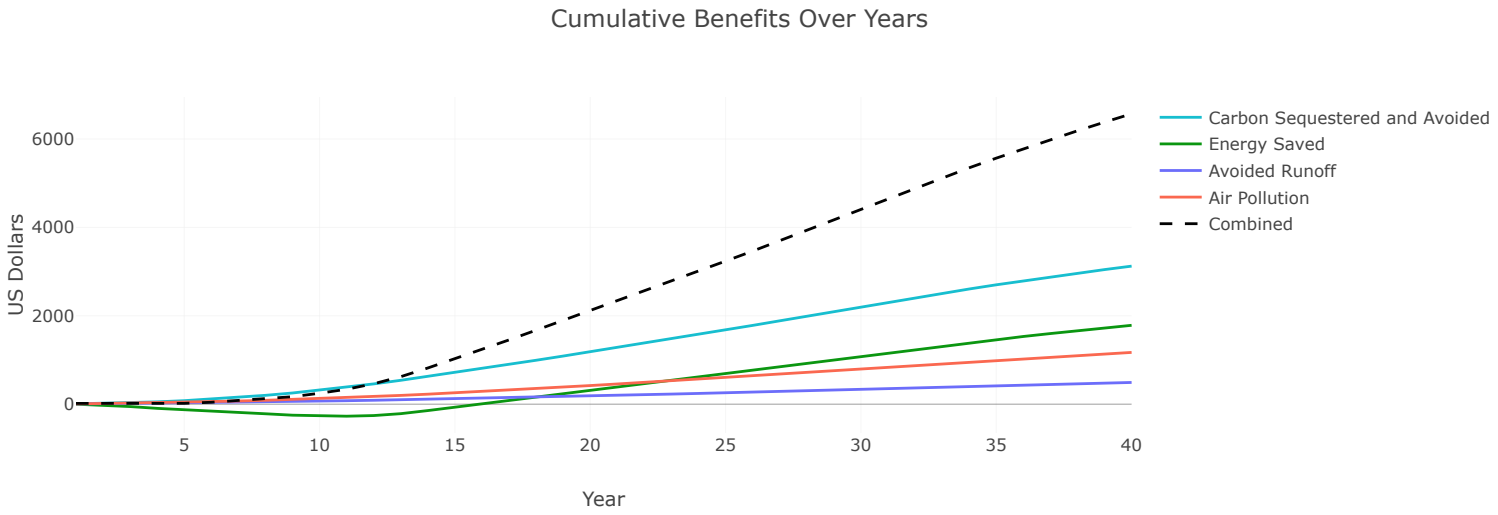
Location			Hydrological Benefits				
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**Rainfall Interception (gallons)**	**Evaporation (gallons)**	**Transpiration (gallons)**	**Runoff Avoided (gallons)**	**Runoff Avoided ($)**
14	• 1 African sumac(Searsia lancea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	8,350.2	8,350.1	45,205.5	3,139.2	$28.05
15	• 1 Ttristania spp(Tristania) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	7,919.8	7,919.7	42,875.5	2,977.4	$26.61
16	• 1 Elaeocarpus spp(Elaeocarpus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	7,373.9	7,373.9	39,920.4	2,772.2	$24.77
Total		15	**146,309.8**	**146,309.4**	**792,082.6**	**55,004.4**	**$491.52**

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
1	• 1 European Olive(Olea europaea ssp. europea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	9.19	0.19	2.38	0.68	0.16	1.20	0.75	0.13	$5.05	$65.38
2	• 1 Chinese pistache(Pistacia chinensis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	12.31	0.01	2.74	0.04	0.20	0.93	0.62	0.09	$3.52	$69.55
3	• 1 Sycamore spp(Platanus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.80	-0.03	4.46	-0.12	0.30	1.10	0.75	0.22	$4.01	$119.00
4	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.88	-0.03	4.25	-0.11	0.31	0.89	0.61	0.15	$3.25	$109.18

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
5	• 1 Fern tree(Filicium decipiens) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	13.31	0.18	3.42	0.62	0.23	1.09	0.68	0.18	$4.58	$92.89
6	• 1 Chinese elm(Ulmus parvifolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	18.88	0.06	4.25	0.21	0.31	1.40	0.92	0.15	$5.41	$109.18
8	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	8.87	-0.43	2.13	-1.52	0.16	-0.11	0.05	0.07	$-1.68	$53.20
9	• 1 Magnolia spp(Magnolia) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	16.71	-0.06	3.78	-0.21	0.27	0.57	0.40	0.14	$1.96	$97.04

Location			Air Benefits									
Group Identifier	Tree Group Characteristics	Initial Number of Trees	O_3 (Ozone) Removed (pounds)	NO_2 (Nitrogen Dioxide) Avoided (pounds)	NO_2 (Nitrogen Dioxide) Removed (pounds)	SO_2 (Sulfur Dioxide) Avoided (pounds)	SO_2 (Sulfur Dioxide) Removed (pounds)	VOC (Volatile Organic Compound) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)	$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)	Avoided Value (Values for avoided pollutants) ($)	Removal Value (Values for removed pollutants) ($)
10	• 1 Rudgea nobilis(Rudgea nobilis) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	10.75	0.07	2.64	0.25	0.19	0.49	0.31	0.11	$2.04	$67.54
11	• 1 Strawberry tree(Arbutus unedo) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	8.87	0.01	2.13	0.02	0.16	1.27	0.85	0.07	$4.76	$53.20
12	• 1 Wilga; australian willow(Geijera parviflora) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	7.98	-0.26	1.93	-0.91	0.14	-0.42	-0.21	0.07	$-2.32	$48.61
13	• 1 Guava crape myrtle(Lagerstroemia calyculata) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and east (90°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	6.57	-0.05	1.47	-0.18	0.11	0.24	0.17	0.05	$0.74	$37.54

Location			Air Benefits									
Group Identifier	**Tree Group Characteristics**	**Initial Number of Trees**	**O_3 (Ozone) Removed (pounds)**	**NO_2 (Nitrogen Dioxide) Avoided (pounds)**	**NO_2 (Nitrogen Dioxide) Removed (pounds)**	**SO_2 (Sulfur Dioxide) Avoided (pounds)**	**SO_2 (Sulfur Dioxide) Removed (pounds)**	**VOC (Volatile Organic Compound) Avoided (pounds)**	**$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Avoided (pounds)**	**$PM_{2.5}$ (Particulate matter smaller than 2.5 micrometers in diameter) Removed (pounds)**	**Avoided Value (Values for avoided pollutants) ($)**	**Removal Value (Values for removed pollutants) ($)**
14	• 1 African sumac(Searsia lancea) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and north (0°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	7.99	0.07	1.82	0.25	0.15	0.49	0.31	0.05	$2.03	$44.40
15	• 1 Ttristania spp(Tristania) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and west (270°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	12.42	-0.01	3.24	-0.05	0.21	1.19	0.80	0.19	$4.41	$90.72
16	• 1 Elaeocarpus spp(Elaeocarpus) tree of 2 inches initial DBH (Diameter at Breast Height). • Planted 0-19 feet and south (180°) of buildings that were built post-1980 with heating and cooling. • Trees are in excellent condition and planted in full sun.	1	11.22	-0.47	2.89	-1.64	0.19	-0.45	-0.16	0.16	$-3.03	$79.14
Total		15	**182.76**	**-0.76**	**43.54**	**-2.68**	**3.08**	**9.87**	**6.85**	**1.83**	**$34.72**	**$1,136.56**



Mortality is modeled as a fractional (not whole) tree estimate and may not align year-over-year.
Sequestration does not account for net differences like decay.
Tree canopy cover estimate assumes no overlap between crowns.

Application v2.7.1, powered by engine v0.16.2 (APIv3) and database v12.0.77.

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