

MEMORANDUM

DATE: July 18, 2024

To: Eric Perez, City Project Manager, City of Orange

FROM: Ronald Brugger, Senior Air Quality Specialist
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SUBJECT: Air Quality and Greenhouse Gas Technical Memorandum for the proposed Cannon Street Widening Project, Orange, California (LSA Project No. 20230893)

INTRODUCTION

LSA has prepared this Air Quality and Greenhouse Gas Technical Memorandum to evaluate the impacts associated with construction and operation of the proposed Cannon Street Widening Project within the City of Orange (City), Orange County, California. This analysis was prepared using methods and assumptions recommended in the air quality impact assessment guidelines of the South Coast Air Quality Management District (SCAQMD) in its *CEQA Air Quality Handbook* (1993) and associated updates. This analysis includes an assessment of criteria pollutant emissions and an assessment of the project's greenhouse gas (GHG) emissions.

PROJECT LOCATION

The Cannon Street Widening Project proposes to widen portions of Cannon Street between Santiago Canyon Road and Serrano Avenue in Orange. Cannon Street currently consists of two northbound through lanes and two southbound through lanes separated by a painted median. Left-turn lanes exist at the intersections within the project limits. Cannon Street passes over Santiago Creek, an Orange County Flood Control District facility, on a three-span concrete bridge. The existing roadway configuration also includes on-street striped Class II bike lanes in both directions. On the east side of the street, a sidewalk runs from the Santiago Creek Bridge north to the project terminus. On the west side of the street, a sidewalk runs from the Santiago Creek Bridge north to Taft Avenue at which point it becomes an undesignated dirt pathway until Carpenter Circle where the sidewalk commences again. The project location is shown on Figure 1 (all figures are provided in Attachment A).

PROJECT DESCRIPTION

The proposed project will widen the roadway to accommodate a third northbound lane from approximately 500 feet north of Santiago Canyon Road to Serrano Avenue where it will join the existing dedicated right-turn lane to eastbound Serrano Avenue. As such, this additional lane will function as an auxiliary lane to improve traffic operations. South of Santiago Creek, additional pavement will be constructed to the east to widen the roadway to meet minimum standard

horizontal curve radii. North of Santiago Creek, the roadway will be widened to the west by approximately 6 feet. The proposed project would construct a bridge in the southbound direction so that bicyclists and pedestrians may cross Santiago Creek just west of the existing vehicular bridge. The proposed bridge will clear span the creek and is expected to consist of a prefabricated steel truss, approximately 170 feet long and 12 feet wide. The new bridge will carry two-way pedestrian traffic and southbound bicyclists. Existing pavement delineation will be reconfigured, and portions of the painted median will be replaced with a raised landscaped median. A traffic signal modification is required at Taft Avenue and would be implemented as part of the project. The proposed project improvements are shown on Figure 2.

The proposed project would add an additional through-lane in one direction and widen sections of the roadway, thus improving the level of service. These changes are not expected to generate new vehicular traffic trips. However, vehicular traffic on Cannon Street may increase due to area growth and traffic currently using other existing routes being attracted to the improved roadway.

The proposed improvements are not expected to require permanent right-of-way acquisitions. Temporary construction easements will be needed from the County of Orange to construct the new pedestrian bridge. A portion of the widening will be outside of the City of Orange's jurisdiction and within the City of Villa Park. The City of Orange has been and will continue to coordinate with Villa Park regarding the project. Utilities, traffic signals and street lighting that are in conflict with the proposed improvements will be relocated.

Construction of the proposed pedestrian bridge will involve excavation for and construction of concrete abutments on the top of the Santiago Creek banks. The abutments will be supported on deep foundations, either cast-in-drilled-hole piles or driven piles. Construction of the roadway widening will involve the removal of existing pavement, sidewalk and landscaping and the placement of fill material, aggregate base, hot mix asphalt pavement, and new guard rails. Tree removal and removal of other vegetation near the new bridge abutments will be conducted as part of proposed project, as necessary.

During construction, Cannon Street will remain open to traffic. Lane shifts will be used to complete the widening work. Construction is expected to have a duration of approximately 250 days.

EXISTING LAND USES IN THE PROJECT AREA

For the purposes of this analysis, sensitive receptors are areas of the population that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include residences, schools, daycare centers, hospitals, parks, and similar uses that are sensitive to air quality. Impacts on sensitive receptors are of particular concern because those receptors are the population most vulnerable to the effects of air pollution. Residential neighborhoods border Cannon Street on both sides north of Santiago Creek. The residential neighborhood west of Cannon Street, north of Taft Avenue is located in the City of Villa Park. The project, and all other adjacent properties are in the City of Orange. South of the creek, undeveloped parcels owned by the County of Orange border the roadway. The County property at the northeast of the Cannon Street and Santiago Canyon Road intersection is a former landfill undergoing methane monitoring. The Oakridge Private

School (preschool through 8th grade) is approximately 1,000 feet west of the project limits boundary along Santiago Creek Road.

The closest sensitive receptors nearby the project limits include single-family residential uses located approximately 50 feet along the eastern and western boundaries of the project limits.

ENVIRONMENTAL SETTING

Air Quality Background

Air quality is primarily a function of local climate, local sources of air pollution, and regional pollution transport. The amount of a given pollutant in the atmosphere is determined by the amount of the pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and, for photochemical pollutants, sunshine.

A region's topographic features have a direct correlation with air pollution flow and therefore are used to determine the boundary of air basins. The proposed project is in the City of Orange and the County of Orange, and is within the jurisdiction of SCAQMD, which regulates air quality in the South Coast Air Basin (Basin).

The Basin comprises approximately 10,000 square miles and covers all of Orange County and the urban parts of Los Angeles, Riverside, and San Bernardino Counties. The Basin is on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east, forming the inland perimeter.

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and suspended particulate matter. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Two criteria pollutants, O₃ and NO₂, are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO₂, and Pb are considered local pollutants that tend to accumulate in the air locally.

Air quality monitoring stations are located throughout the nation and are maintained by the local air districts and State air quality regulating agencies. Data collected at permanent monitoring stations are used by the United States Environmental Protection Agency (USEPA) to identify regions as "attainment" or "nonattainment" depending on whether the regions meet the requirements stated in the applicable National Ambient Air Quality Standards (NAAQS). Nonattainment areas are imposed with additional restrictions as required by the USEPA. In addition, different classifications of attainment (e.g., marginal, moderate, serious, severe, and extreme) are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and to comply with the NAAQS. As shown in Table A, the Basin is designated as nonattainment by federal standards for O₃ and particulate matter less than 2.5 microns in diameter (PM_{2.5}) and nonattainment by State standards for O₃, particulate matter less than 10 microns in diameter (PM₁₀), and PM_{2.5}.

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

Pollutant	State	Federal
O ₃ 1-hour	Nonattainment	N/A
O ₃ 8-hour	Nonattainment	Extreme Nonattainment
PM ₁₀	Nonattainment	Attainment/Maintenance
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Attainment	Unclassified/Attainment (1-hour) Attainment/Maintenance (Annual)
SO ₂	Attainment	Unclassified/Attainment
Lead	Attainment ¹	Unclassified/Attainment ¹
All Others	Attainment/Unclassified	Attainment/Unclassified

Source 1: NAAQS and CAAQS Attainment Status for South Coast Air Basin (SCAQMD 2016). Website: www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caoqs-feb2016.pdf (accessed April 2024).

Source 2: Nonattainment Areas for Criteria Pollutants (Green Book) (USEPA 2019). Website: www.epa.gov/green-book (accessed April 2024).

¹ Only the Los Angeles County portion of the South Coast Air Basin is in nonattainment for lead.

CAAQS = California Ambient Air Quality Standards

O₃ = ozone

CO = carbon monoxide

PM₁₀ = particulate matter less than 10 microns in diameter

EPA = United States Environmental Protection Agency

PM_{2.5} = particulate matter less than 2.5 microns in diameter

N/A = not applicable

SCAQMD = South Coast Air Quality Management District

NAAQS = National Ambient Air Quality Standards

SO₂ = sulfur dioxide

NO₂ = nitrogen dioxide

O₃ levels, as measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by SCAQMD and other regional, State, and federal agencies. The reduction of peak concentrations represents progress in improving public health; however, the Basin still exceeds the State standard for 1-hour and 8-hour O₃ levels. The USEPA lowered the 1997 0.80 parts per million (ppm) national 8-hour ozone standard to 0.75 ppm in 2008 and then to 0.70 ppm on October 1, 2015. The Basin is classified nonattainment for the 1-hour and 8-hour ozone standards at the State and federal level.

From 2020 to 2022, the Pampas Lane Air Monitoring Station located at 1630 West Pampas Lane in the City of Anaheim (the closest monitoring station nearby the project limits) recorded the following exceedances of the State and federal 1-hour and 8-hour O₃ standards:¹

- The federal 8-hour O₃ standard had 15 exceedances in 2020, none in 2021, and one in 2022.
- The State 8-hour O₃ standard had 16 exceedances in 2020, none in 2021, and one in 2022.
- The federal 1-hour O₃ standard had two exceedances in 2020 and no exceedances in 2021 and 2022.
- The State 1-hour O₃ standard had six exceedances in 2020, none in 2021, and one in 2022.

¹ California Air Resources Board (CARB). 2020. iADAM Air Quality Data Statistics. Website: <https://www.arb.ca.gov/adam/topfour/topfour1.php> (accessed April 2024).

National and State standards have also been established for PM_{2.5} over 24-hour and yearly averaging periods. PM_{2.5}, because of the small size of individual particles, can be especially harmful to human health. PM_{2.5} is emitted by common combustion sources such as cars, trucks, buses, and power plants, in addition to ground-disturbing activities. On December 17, 2006, the USEPA strengthened the 24-hour PM_{2.5} NAAQS from 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 35 $\mu\text{g}/\text{m}^3$, and the Basin was subsequently designated “moderate” nonattainment for the 2006 24-hour PM_{2.5} NAAQS on December 14, 2009. On February 7, 2024, the USEPA strengthened the NAAQS for PM_{2.5} by revising the primary (health-based) annual standard from 12.0 $\mu\text{g}/\text{m}^3$ to 9.0 $\mu\text{g}/\text{m}^3$; however, a new attainment designation has not been issued. The Basin is also considered a nonattainment area for the PM_{2.5} standard at the State level. From 2020 to 2022, the Pampas Lane Monitoring Station (the closest station nearby the project limits monitoring PM_{2.5}) recorded the following exceedances of the federal 24-hour PM_{2.5}.

- The federal 24-hour PM_{2.5} standard had 12 exceedances in 2020, 10 in 2021, and no exceedances in 2022.

The Basin is classified as a PM₁₀ nonattainment area at the State level and was redesignated from serious nonattainment to attainment of the federal PM₁₀ standard on July 26, 2013. Because the Basin was redesignated from nonattainment to attainment, a PM₁₀ maintenance plan was adopted in 2013 and is required to be updated every 10 years. From 2019 to 2021, the 1630 West Pampas Lane Air Monitoring Station in Anaheim (the closest monitoring station nearby the project limits) recorded no exceedances of the federal 24-hour PM₁₀ standard. However, the following exceedances of the State 24-hour PM₁₀ standard were recorded at the West Pampas Lane station:

- The State 24-hour PM₁₀ standard had five exceedances in 2020, one exceedance in 2021, and one exceedance in 2022.

All areas of the Basin have continued to remain below the federal CO standards (35 ppm 1-hour and 9 ppm 8-hour) since 2003. The USEPA redesignated the Basin to attainment of the federal CO standards, effective June 11, 2017. The Basin is also well below the State CO standards (20 ppm 1-hour CO and 9 ppm 8-hour CO).

Greenhouse Gas Background

GHGs are present in the atmosphere naturally, are released by natural sources, or form from secondary reactions taking place in the atmosphere. Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. Although manmade GHGs include naturally occurring GHGs such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), some gases like hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃), and sulfur hexafluoride (SF₆) are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its

atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “CO₂ equivalents” (CO₂e).

REGULATORY SETTING

This section provides regulatory background information on applicable federal, State, regional, and local air quality regulations.

Air Quality

Federal Regulations

The 1970 Federal Clean Air Act (CAA) authorized the establishment of national health-based air quality standards and set deadlines for their attainment. The CAA Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required for areas of the nation that exceed the standards. Under the CAA, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

State Regulations

In 1988, the California Clean Air Act (CCAA) required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards (CAAQS) for CO, O₃, SO₂, and NO₂ by the earliest practical date. The CCAA provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

The California Air Resources Board (CARB) is the State’s “clean air agency.” The CARB’s goals are to attain and maintain healthy air quality, protect the public from exposure to toxic air contaminants, and oversee compliance with air pollution rules and regulations.

Regional Regulations

The proposed project would be required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best

available control measures so the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. SCAQMD Rule 1113 limits the volatile organic compound (VOC) content of architectural coatings. Applicable dust suppression techniques from SCAQMD Rule 403 and low VOC content in paints under SCAQMD Rule 1113 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component). Compliance with these rules would reduce impacts on nearby sensitive receptors.

South Coast Air Quality Management District Rule 403 Measures.

- Water active sites at least twice daily (locations where grading is to occur will be thoroughly watered prior to earthmoving).
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114 (freeboard means vertical space between the top of the load and top of the trailer).
- Traffic speeds on all unpaved roads shall be reduced to 15 miles per hour or less.

South Coast Air Quality Management District Rule 1113 Measures. SCAQMD Rule 1113 governs the sale, use, and manufacture of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction and operation of the proposed project. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Local Regulations

City of Orange General Plan 2010. The City of Orange addresses air quality in the Natural Resources Element of the City of Orange General Plan 2010.² The General Plan contains goals and policies that work to protect air, water, and energy resources from pollution and overuse. The following policies are applicable to the proposed project:

- Cooperate with the South Coast Air Quality Management District (SCAQMD) and other regional agencies to implement and enforce regional air quality management plans.
- Support alternative transportation modes, alternative technologies, and bicycle- and pedestrian-friendly neighborhoods to reduce emissions related to vehicular travel.
- Encourage development that incorporates pedestrian- and transit-oriented design and landscape elements.

² City of Orange. 2010. *Orange General Plan*, Natural Resources Element. March. Website: <https://www.cityoforange.org/home/showpublisheddocument/210/637698172559270000> (accessed April 2024).

Greenhouse Gas Emissions

This section describes regulations related to global climate change at the federal, State, and local levels.

Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the USEPA has the authority to regulate CO₂ emissions under the CAA.

Although there currently are no adopted federal regulations for the control or reduction of GHG emissions, the USEPA commenced several actions in 2009 to implement a regulatory approach to global climate change, including the 2009 USEPA final rule for mandatory reporting of GHGs from large GHG emission sources in the United States. Additionally, the USEPA Administrator signed an endangerment finding action in 2009 under the CAA, finding that seven GHGs (CO₂, CH₄, N₂O, HFCs, NF₃, PFCs, and SF₆) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to global climate change, leading to national GHG emission standards.

State Regulations

The CARB is the lead agency for implementing climate change regulations in the State. Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems. Key efforts by the State are described below.

Assembly Bill 32 (2006), California Global Warming Solutions Act. California's major initiative for reducing GHG emissions is Assembly Bill (AB) 32, passed by the State legislature on August 31, 2006. This effort set a GHG emission reduction target to reduce GHG emissions to 1990 levels by 2020. CARB has established the level of GHG emissions in 1990 at 427 million metric tons (MMT) of CO₂e. The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. AB 32 requires CARB to prepare a Scoping Plan that outlines the main State strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change. CARB approved the Scoping Plan on December 11, 2008. It contains the main strategies California will implement to achieve the reduction of approximately 169 MMT CO₂e, or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT CO₂e under a business-as-usual scenario (this is a reduction of 42 MMT CO₂e, or almost 10 percent, from the 2002–2004 average emissions). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of the State's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reduction of 31.7 MMT CO₂e)
- The Low-Carbon Fuel Standard (15.0 MMT CO₂e)
- Energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO₂e)

- A renewable portfolio standard for electricity production (21.3 MMT CO₂e)

The CARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB climate change priorities until 2020 and sets the groundwork to reach long-term goals set forth in Executive Orders (EOs) S-3-05 and B-16-2012. The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals as defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use. The CARB released a second update to the Scoping Plan, the 2017 Scoping Plan,³ to reflect the 2030 target that was set by EO B-30-15 and codified by Senate Bill (SB) 32.

The 2022 Scoping Plan⁴ was approved in December 2022 and assesses progress toward the statutory 2030 target while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

Senate Bill 375 (2008). Signed into law on October 1, 2008, SB 375 supplements GHG reductions from new vehicle technology and fuel standards with reductions from more efficient land use patterns and improved transportation. Under the law, CARB-approved GHG reduction targets in February 2011 for California's 18 federally designated regional planning bodies, known as Metropolitan Planning Organizations (MPOs). CARB may update the targets every 4 years and must update them every 8 years. MPOs, in turn, must demonstrate how their plans, policies, and transportation investments meet the targets set by CARB through Sustainable Community Strategies (SCSs). The SCSs are included with the Regional Transportation Plan (RTP), a report required by State law. However, if an MPO finds that its SCS will not meet the GHG reduction targets, it may prepare an Alternative Planning Strategy. The Alternative Planning Strategy identifies the impediments to achieving the targets.

Executive Order B-30-15 (2015). Governor Jerry Brown signed EO B-30-15 on April 29, 2015, which added the immediate target of:

- GHG emissions should be reduced to 40 percent below 1990 levels by 2030.

All State agencies with jurisdiction over sources of GHG emissions were directed to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 targets. CARB was directed to update the AB 32 Scoping Plan to reflect the 2030 target and, therefore, is moving forward with the update process. The mid-term target is critical to help frame the suite of policy

³ CARB. 2017. *California's 2017 Climate Change Scoping Plan*. November.

⁴ CARB. 2022. *2022 Scoping Plan Update*. May 10. Website: <https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf> (accessed December 2023).

measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue reducing emissions.

Senate Bill 350 (2015) Clean Energy and Pollution Reduction Act. SB 350, signed by Governor Jerry Brown on October 7, 2015, updates and enhances AB 32 by introducing the following set of objectives in clean energy, clean air, and pollution reduction for 2030:

- Raise California’s renewable portfolio standard from 33 percent to 50 percent.
- Increase energy efficiency in buildings by 50 percent by the year 2030.

The 50 percent renewable energy standard will be implemented by the California Public Utilities Commission (CPUC) for the private utilities and by the California Energy Commission (CEC) for municipal utilities. Each utility must submit a procurement plan showing it will purchase clean energy to displace other nonrenewable resources. The 50 percent increase in energy efficiency in buildings must be achieved through the use of existing energy efficiency retrofit funding and regulatory tools already available to State energy agencies under existing law. The addition made by this legislation requires State energy agencies to plan for and implement those programs in a manner that achieves the energy efficiency target.

Senate Bill 32, California Global Warming Solutions Act of 2016, and Assembly Bill 197. In summer 2016, the Legislature passed, and the Governor signed, SB 32 and AB 197. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reductions target of at least 40 percent below 1990 levels by 2030 contained in Governor Brown’s April 2015 EO B-30-15. SB 32 builds on AB 32 and keeps us on the path toward achieving the State’s 2050 objective of reducing emissions to 80 percent below 1990 levels, consistent with an Intergovernmental Panel on Climate Change analysis of the emission trajectory that would stabilize atmospheric GHG concentrations at 450 ppm CO₂e and reduce the likelihood of catastrophic impacts from climate change.

AB 197, the companion bill to SB 32, provides additional direction to CARB related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 meant to provide easier public access to air emissions data that are collected by CARB was posted in December 2016.

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

Executive Order B-55-18. EO B-55-18, signed September 10, 2018, sets a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” EO B-55-18 directs CARB to work with relevant State agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning that not only

should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions should be offset by equivalent net removals of CO₂e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Assembly Bill 1279. AB 1279 was signed in September 2022 and codifies the State goals of achieving net carbon neutrality by 2045 and maintaining net negative GHG emissions thereafter. This bill also requires California to reduce statewide GHG emissions by 85 percent compared to 1990 levels by 2045 and directs CARB to work with relevant State agencies to achieve these goals.

Title 24, Building Efficiencies Standards, and the California Green Building Standards Code. In November 2008, the California Building Standards Commission established the California Green Building Standards Code (CALGreen Code) (California Code of Regulations Title 24, Part 11), which sets performance standards for residential and nonresidential development to reduce environmental impacts and to encourage sustainable construction practices. The CALGreen Code addresses energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. The CALGreen Code is updated every 3 years and was most recently updated in 2022 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2023.

Regional Regulations

Southern California Association of Governments. The Southern California Association of Governments (SCAG) is a regional council consisting of the following six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In total, the SCAG region encompasses 191 cities and over 38,000 square miles within Southern California. SCAG is the MPO serving the region under federal law and serves as the Joint Powers Authority, the Regional Transportation Planning Agency, and the Council of Governments under State law. As the Regional Transportation Planning Agency, SCAG prepares long-range transportation plans for the Southern California region, including the RTP/SCS and the 2008 Regional Comprehensive Plan (RCP).

On April 4, 2024, SCAG adopted *Connect SoCal: 2024 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal 2024).⁵ In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled (VMT) from automobiles and light-duty trucks and thereby reduce GHG emissions from these sources. For the SCAG region, the CARB has set GHG reduction targets at 8 percent below 2005 per-capita emissions levels by 2020 and 19 percent below 2005 per capita emissions levels by 2035. The 2024 RTP/SCS lays out a strategy for the region to meet these targets. Overall, the SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high-quality transit areas and livable corridors, and creating neighborhood mobility areas to integrate land use and transportation and plan for more

⁵ Southern California Association of Governments (SCAG). 2024. *Connect SoCal: Regional Transportation Plan/Sustainable Communities Strategy*. April 4. Website: <https://scag.ca.gov/sites/main/files/file-attachments/23-2987-connect-socal-2024-final-complete-040424.pdf?1714175547> (accessed July 18, 2024).

active lifestyles.⁶ However, the SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

South Coast Air Quality Management District. In 2008, the SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAQMD. The Working Group developed several different options that are contained in the SCAQMD 2008 draft guidance document titled *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* (2008) that could be applied by lead agencies. On September 28, 2010, SCAQMD Working Group Meeting No. 15 provided further guidance, including a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency. SCAQMD has not presented a finalized version of these thresholds to the governing board.

SCAQMD identifies the emissions level for which a project would not be expected to substantially conflict with any State legislation adopted to reduce statewide GHG emissions. As such, the utilization of a service population represents the rates of emissions needed to achieve a fair share of the State's mandated emissions reductions. Overall, SCAQMD identifies a GHG efficiency level that, when applied statewide or to a defined geographic area, would meet the 2020 and post-2020 emission targets as required by AB 32 and SB 32. If projects are able to achieve targeted rates of emissions per the service population, the State would be able to accommodate expected population growth and achieve economic development objectives while also abiding by AB 32's emissions target and future post-2020 targets. The SCAQMD has established a flowchart for evaluating GHG significance and indicates that when a project is exempt from the California Environmental Quality Act (CEQA), no further analysis is required.

Local Regulations

City of Orange General Plan 2010. The City's General Plan⁷ contains policies indirectly related to GHGs and climate change. This includes measures to improve transit efficiency, reduce truck idling, increase ridesharing, promote mixed land uses, and requiring the implementation of energy saving features such as solar energy systems, water efficient landscaping, and energy efficient, sustainable building standard.

METHODOLOGY

Construction Emissions

Construction activities can generate a substantial amount of air pollution. Construction activities are considered temporary; however, short-term impacts can contribute to exceedances of air quality standards. Construction activities include site preparation, earthmoving, and general construction.

⁶ Southern California Association of Governments (SCAG). 2024. *Connect SoCal: Regional Transportation Plan/Sustainable Communities Strategy*. April 4. Website: <https://scag.ca.gov/sites/main/files/file-attachments/23-2987-connect-socal-2024-final-complete-040424.pdf?1714175547> (accessed July 18, 2024).

⁷ City of Orange. 2010. *Orange General Plan*, Natural Resources Element. March. Website: <https://www.cityoforange.org/home/showpublisheddocument/210/637698172559270000> (accessed April 2024)

The emissions generated from these common construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty, diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips.

The California Emissions Estimator Model version 2022.1 (CalEEMod) computer program was used to calculate emissions from on-site construction equipment and emissions from worker and vehicle trips to the site. This analysis assumes that construction would begin in August 2025 and would last approximately 250 days, ending in July 2026. The proposed project would require approximately 1,700 tons of roadway debris to be removed from the site and approximately 900 cubic yards (CY) of soil to be imported to the site, which was included in CalEEMod. This analysis assumes compliance with SCAQMD Rule 403 measures. All other construction details are not yet known; therefore, default assumptions (e.g., construction equipment and construction hauling and vendor truck trips and fleet activities) from CalEEMod were used.

Operational Emissions

This air quality analysis includes estimating emissions associated with long-term operation of the project. Indirect emissions of criteria pollutants with regional impacts would be emitted by project-generated vehicle trips.

Consistent with SCAQMD guidance for estimating emissions associated with land use development projects, the CalEEMod computer program was used to calculate the long-term operational emissions associated with the project. As discussed in the Project Location and Project Description sections, the proposed project would widen portions of Cannon Street between Santiago Canyon Road and Serrano Avenue. Therefore, this analysis was conducted using the linear project feature in CalEEMod and land use codes for *Road Widening* and *Bridge/Overpass Construction*.

Greenhouse Gas Emissions

Recognizing that the field of global climate change analysis is rapidly evolving, the approaches advocated most recently indicate that for determining a project's contribution to GHG emissions, lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, construction activities, and any other significant source of emissions within the project area. GHG emissions associated with the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust.. The CalEEMod results were used to quantify GHG emissions generated by the proposed project.

THRESHOLDS OF SIGNIFICANCE

The *State CEQA Guidelines* indicate that a project would normally have a significant adverse air quality impact if project-generated pollutant emissions would do any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project is nonattainment under applicable federal or State ambient air quality standards;

- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) affecting a substantial number of people.

Certain air districts (e.g., SCAQMD) have created guidelines and requirements to conduct air quality analysis. The SCAQMD’s current guidelines, the *CEQA Air Quality Handbook*⁸ with associated updates, were followed in this assessment of air quality impacts for the proposed project.

Regional Emissions Thresholds

SCAQMD has established daily emission thresholds for construction and operation of a proposed project in the Basin. The emission thresholds were established based on the attainment status of the Basin with regards to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project’s contribution to health risks. Table B lists the CEQA significance thresholds for construction and operational emissions established for the Basin.

Table B: Regional Thresholds for Construction and Operational Emissions

Emissions Source	Pollutant Emissions Threshold (lbs/day)					
	VOC	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Construction	75	100	550	150	55	150
Operations	55	55	550	150	55	150

Source: SCAQMD Air Quality Significance Thresholds, April 2019. Website: <https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25> (accessed April 2024).

CO = carbon monoxide

lbs/day = pounds per day

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SCAQMD = South Coast Air Quality Management District

SO_x = sulfur oxides

VOC = volatile organic compounds

Projects in the Basin with construction- or operation-related emissions that exceed any of their respective emission thresholds would be considered significant under SCAQMD guidelines. These thresholds, which the SCAQMD developed and that apply throughout the Basin, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

Local Microscale Concentration Standards

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the project vicinity are above or below State and federal CO standards. Because ambient CO levels are below the standards throughout the SCAQMD, a project would be considered to have a significant CO impact if project emissions would result in an exceedance of one or more of the

⁸ South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Air Quality Handbook*. Website: [http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-\(1993\)](http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993)) (accessed April 2024).

1-hour or 8-hour standards. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20 ppm
- California State 8-hour CO standard of 9 ppm

Localized Impacts Analysis

SCAQMD published its Final Localized Significance Threshold Methodology in July 2008, recommending that all air quality analyses include an assessment of air quality impacts to nearby sensitive receptors.⁹ This guidance was used to analyze potential localized air quality impacts associated with construction of the proposed project. Localized significance thresholds (LSTs) are developed based on the size or total area of the emission source, the ambient air quality in the source receptor area, and the distance to the project. Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality.

LSTs are based on the ambient concentrations of that pollutant within the project Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For the proposed project, the appropriate SRA for the LST is the Central Orange County area (SRA 17). SCAQMD provides LST screening tables for 25-, 50-, 100-, 200-, and 500-meter source-receptor distances. In cases where receptors may be closer than 82 feet (25 meters), any distances within the 82-foot (25-meter) buffer zone can be used to assess potential impacts on nearby sensitive receptors. As identified above, the closest sensitive receptors nearby the project limits include single-family residential uses located approximately 50 feet from the eastern and western boundaries of the project limits. Because these sensitive receptors abut the project limits, the minimum distance of 82 feet was used. Based on the anticipated construction equipment, it is assumed that the maximum daily disturbed acreage for the proposed project would be 5.0 acres.¹⁰ Table C lists the localized emissions thresholds that apply during project construction.

Table C: SCAQMD Localized Significance Thresholds

Emissions Source	Pollutant Emissions Threshold (lbs/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
Construction (5.0-acres, 82-foot distance)	183.0	1,253.0	13.0	7.0

Source: *Final Localized Significance Threshold Methodology* (SCAQMD, July 2008).
 CO = carbon monoxide PM₁₀ = particulate matter less than 10 microns in size
 lbs/day = pounds per day PM_{2.5} = particulate matter less than 2.5 microns in size
 NO_x = nitrogen oxides SCAQMD = South Coast Air Quality Management District

⁹ South Coast Air Quality Management District (SCAQMD). 2008. *Final Localized Significance Threshold Methodology*. July.

¹⁰ SCAQMD. *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*. Website: <https://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf> (accessed April 2024).

Greenhouse Gas Thresholds

State CEQA Guidelines Section 15064(b) provides that the “determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data,” and further states that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

The City of Orange has adopted Appendix G of the *State CEQA Guidelines* as the significance threshold for GHG emissions. A project would normally have a significant effect on the environment if it would:

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

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

- **Tier 1—Exemptions:** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2—Consistency with a Locally Adopted GHG Reduction Plan:** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project’s geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3—Numerical Screening Threshold:** If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, is proposing a “bright-line” screening-level threshold of 3,000 metric tons (MT) of CO₂e (or MT CO₂e) per year (or MT CO₂e/year) for all land use types or, under Option 2, the following land use-specific thresholds: 1,400 MT CO₂e for commercial projects; 3,500 MT CO₂e for residential projects; or 3,000 MT CO₂e for mixed-use projects. This bright-line threshold is based on a review of the Office of Planning and Research (OPR) database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and therefore less than cumulatively considerable impact on GHG emissions.

- **Tier 4—Performance Standards:** If emissions exceed the numerical screening threshold, a more detailed review of the project’s GHG emissions is warranted. The SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per-capita efficiency targets. The SCAQMD is not recommending use of a percentage emissions reduction target. Instead, the SCAQMD proposes proposed a 2020 efficiency target of 4.8 MT CO₂e per year per service population for project-level analyses and 6.6 MT CO₂e per year per service population for plan-level projects (e.g., program-level projects such as General Plans). Because the project would be exempt under CEQA, Tier 1 would apply to the project and no further analysis is required under CEQA.

For the purpose of this analysis, the proposed project will be compared to the threshold of 3,000 MT CO₂e per year for all land use types. The project is also evaluated for compliance with the 2022 Scoping Plan and SCAG’s Connect SoCal 2024.

IMPACT ANALYSIS

This section identifies potential air quality and GHG impacts associated with construction of the proposed project. After construction is completed, the proposed project is not expected to generate substantial operational emissions or energy use; therefore, this analysis focuses on the construction phase of the proposed project. Operational impacts are evaluated qualitatively.

Air Quality Impacts

This section identifies potential air quality impacts associated with implementation of the proposed project.

Consistency with Applicable Air Quality Plans

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

The proposed project would widen portions of Cannon Street between Santiago Canyon Road and Serrano Avenue, however the additional lane included as part of the widening will function as an auxiliary lane to improve traffic operations and will not increase current traffic capacity. The proposed project is not considered a project of statewide, regional, or area-wide significance (e.g., large-scale projects such as airports, electrical generating facilities, petroleum and gas refineries, residential development of more than 500 dwelling units, shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space) as defined in the California Code of Regulations (Title 14, Division 6, Chapter 3, Article 13, §15206(b)). Because the proposed project would not be defined as a regionally significant project under CEQA, it does not meet the Southern California Association of Governments’ (SCAG) Intergovernmental Review criteria.

The City of Orange General Plan is consistent with the SCAG Regional Comprehensive Plan Guidelines and the SCAQMD Air Quality Management Plan (AQMP). Pursuant to the methodology provided in the *SCAQMD CEQA Air Quality Handbook*, consistency with the Basin AQMP is affirmed when a project (1) would not increase the frequency or severity of an air quality standards violation or cause a new violation, and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. The project would result in short-term construction emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD. In addition, once operational, the proposed project would not generate additional pollutant emissions when compared to existing conditions, as demonstrated below; therefore, the project would not result in an increase in the frequency or severity of an air quality standards violation or cause a new air quality standards violation.
2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities. The proposed project includes an auxiliary and pedestrian/bicycle facilities; therefore, the proposed project is not defined as significant.

Based on the consistency analysis presented above, the proposed project would be consistent with the regional AQMP.

Criteria Pollutant Analysis

The Basin is currently designated as nonattainment for the federal and State standards for O₃ and PM_{2.5}. In addition, the Basin is in nonattainment for the PM₁₀ standard. The Basin's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of an ambient air quality standard. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed project.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by demolition, construction, paving, and other activities. Emissions from construction equipment are also anticipated and would include CO, nitrogen oxides (NO_x), VOC, directly emitted PM_{2.5} or PM₁₀, and toxic air contaminants such as diesel exhaust particulate matter.

Project construction activities would include grubbing and land clearing, grading and excavation, drainage, utilities, and sub-grade, and paving activities. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and amount of operating equipment. Larger dust particles would settle near the source, whereas fine particles would be dispersed over greater distances from the construction site.

SCAQMD has established Rule 403: Fugitive Dust, which would require the applicant to implement measures that would reduce the amount of particulate matter generated during the construction period. The Rule 403 measures that were incorporated in this analysis include:

- Water active sites at least twice daily (locations where earth disturbance is to occur shall be thoroughly watered prior to earthmoving).
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet (0.6 meter) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, sulfur oxides (SO_x), NO_x, VOCs, and some soot particulate (PM_{2.5} and PM₁₀) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using CalEEMod and are summarized in Table D. Attachment B provides CalEEMod output sheets.

The results shown in Table D indicate the proposed project would not exceed the significance criteria for daily VOC, NO_x, CO, SO_x, PM₁₀, or PM_{2.5} emissions. Therefore, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State AAQS.

Table D: Short-Term Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs/day)					
	VOC	NO _x	CO	SO _x	Total PM ₁₀	Total PM _{2.5}
Maximum Daily Emissions	10.3	88.2	100.9	0.2	7.9	4.2
SCAQMD Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: Compiled by LSA (April 2024).

Note = Values may not appear to add up correctly due to rounding.

CO = carbon monoxide

lbs/day = pounds per day

NO_x = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SCAQMD = South Coast Air Quality Management District

SO_x = sulfur oxides

VOC = volatile organic compounds

Operational Air Quality Impacts. Long-term air pollutant emission impacts are those associated with mobile sources (e.g., vehicle trips), energy sources (e.g., electricity), and area sources (e.g., landscape maintenance equipment use) related to the proposed project. The proposed project will widen the roadway to accommodate a third northbound lane from approximately 500 feet north of Santiago Canyon Road to Serrano Avenue where it will join the existing dedicated right-turn lane to eastbound Serrano Avenue. This additional lane will function as an auxiliary lane to improve traffic operations. Furthermore, the proposed project would construct a bridge in the southbound direction so that bicyclists and pedestrians may cross Santiago Creek just west of the existing vehicular bridge. The new bridge will carry two-way pedestrian traffic and southbound bicyclists. The traffic signal at Taft Avenue would be modified.

As discussed in the traffic memorandum¹¹ for the proposed project, upon completion of construction activities, operation of the proposed project would not result in an induced travel demand and would not lead to a substantial increase in vehicle travel. The proposed project would add an additional through lane in one direction and widen sections of the roadway, thus improving the level of service and reduce traffic delay. These changes are not expected to generate new vehicular traffic trips. Additionally, the proposed project would improve conditions for pedestrians and cyclists (widening of the west side of Cannon Street where pedestrian and bicycle facilities narrow and providing a new bridge over Santiago Creek). As such, the proposed project would not result in an increase in the generation of vehicle trips or VMT that would result in an increase in air pollutant emissions. Any utilities, traffic signals and street lighting that are in conflict with the proposed improvements will be relocated, if needed. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard.

Health Risk on Nearby Sensitive Receptors

As discussed above, the closest sensitive receptors nearby the project limits include single-family residential uses located approximately 50 feet from the eastern and western boundaries of the project limits. The LST analysis was completed to show the construction impacts at 25 meters (82

¹¹ LSA Associates, Inc. (LSA). *Proposed Improvements to Cannon Street Traffic VMT Memo*. November 2023.

feet) to the nearest sensitive receptors nearby the project limits in SRA 17, based on a 5.0-acre disturbance area. Table E shows the results of the LST analysis during project construction.

Table E: Project Localized Construction Emissions

Source	Pollutant Emissions (lbs/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
On-Site Emissions	87.6	95.1	6.5	3.9
Localized Significance Threshold	183.0	1,253.0	13.0	7.0
Significant?	No	No	No	No

Source: Compiled by LSA (April 2024).

Note: Source Receptor Area 17, based on a 5.0-acre construction disturbance daily area, at a distance of 82 feet from the project boundary.

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

lbs/day = pounds per day

PM₁₀ = particulate matter less than 10 microns in size

NO_x = nitrogen oxides

As detailed in Table E, the proposed project would not result in an exceedance of a SCAQMD LST during project construction. During construction, construction contractors would be required to implement measures to reduce or eliminate emissions by implementing SCAQMD Rule 403 dust control measures. In addition, the maximum daily emissions associated with the proposed project construction emissions are identified in Table D and indicate the proposed project would not exceed the significance criteria for VOC, NO, CO, SO_x, PM₁₀, or PM_{2.5} emissions. Therefore, the emissions associated with construction of the proposed project would not be expected to exceed the most stringent applicable federal or State ambient air quality standards. Once operational, the proposed project is not expected to generate emissions.

It should be noted that the ambient air quality standards are developed and represent levels at which the most susceptible persons (children and the elderly) are protected. In other words, the ambient air quality standards are purposefully set low to protect children, the elderly, and those with existing respiratory problems. Therefore, given the temporary nature of short-term construction impacts, and the absence of any exceeded threshold of significance related to construction impacts, construction of the proposed project would not exceed SCAQMD thresholds and would not expose nearby sensitive receptors to substantial pollutant concentrations. No significant health risk would occur from the proposed project construction emissions. Furthermore, as discussed in the preceding section, the proposed project’s operational activities would not be considered significant. Therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations during project construction or operation.

Naturally Occurring Asbestos

The proposed project is located in Orange County, which is among the counties found to have serpentine and ultramafic rock in their soils.¹² However, according to the California Geological Survey, no such rock has been identified in the project vicinity. As described above, the proposed

¹² California Department of Conservation (DOC). n.d. California Geological Survey. Asbestos. Website: <https://www.conservation.ca.gov/cgs/minerals/mineral-hazards> (accessed April 2024).

project would require excavation and removal of existing pavement for the construction of the roadway widening and pedestrian bridge. As such, asphalt demolition may expose asbestos used in building materials; however, the proposed project would be required to comply with SCAQMD Rule 1403: Asbestos Demolition and Removal, which would reduce asbestos exposure. Therefore, with compliance of SCAQMD Rule 1403, the potential risk for naturally occurring asbestos (NOA) during project construction is small and would be considered to be less than significant.

Odors

Heavy-duty equipment used within the project limits during construction would emit odors, primarily from equipment exhaust. However, the construction activity would cease after construction is completed. No other sources of objectionable odors have been identified for the proposed project.

SCAQMD Rule 402 regarding nuisances states: “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons 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.” The proposed project would not emit any objectionable odors. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Greenhouse Gas Emission Impacts

The following sections describe the proposed project’s construction- and operation-related GHG impacts and consistency with applicable GHG reduction plans.

Generation of Greenhouse Gas Emissions

This section describes the proposed project’s construction- and operation-related GHG emissions and contribution to global climate change. The SCAQMD has not addressed emission thresholds for construction in its *CEQA Air Quality Handbook*; however, SCAQMD requires quantification and disclosure. Thus, this section discusses construction emissions.

Construction Greenhouse Gas Emissions. Construction activities associated with the proposed project would produce combustion emissions from various sources. Construction would emit GHGs through the operation of construction equipment and from worker and builder supply vendor vehicles for the duration of the approximately 250-day construction period. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, the fueling of heavy equipment emits CH₄. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

As indicated above, SCAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are required to quantify and disclose GHG emissions that would occur during construction. The SCAQMD then requires the construction GHG emissions to be amortized over the life of the project (which is defined as 30 years), added to the operational emissions, and compared to the applicable interim GHG significance threshold tier. Based on

CalEEMod, it is estimated that the project would generate 1,767.2 MT CO₂e during construction of the project. When amortized over the 30-year life of the project, annual emissions would be 58.9 MT CO₂e. Construction emissions are temporary and would cease to occur after the construction period; therefore, the proposed project would not result in the generation of substantial GHG emissions during construction. Therefore, construction activities would not generate a significant amount of GHG emissions.

Operational Greenhouse Gas Emissions. Long-term GHG emissions are typically generated from mobile sources (e.g., cars, trucks, and buses), area sources (e.g., maintenance activities and landscaping), and indirect emissions from sources associated with energy consumption.

As described in the Project Description section above, the proposed project will widen the roadway to accommodate a third northbound lane on Cannon Avenue to improve traffic operations. Furthermore, the proposed project would improve pedestrian and bicyclist facilities by constructing a new bridge just west of the existing vehicular bridge.

As discussed in the traffic memorandum¹³ for the proposed project, upon completion of construction activities, operation of the proposed project would not result in an induced travel demand and would not lead to a substantial increase in vehicle travel. The proposed project would add an additional through lane in one direction and widen sections of the roadway, thus improving the level of service and reducing delay. These changes are not expected to generate new vehicular traffic trips. Additionally, the proposed project would improve conditions for pedestrians and cyclists (widening of the west side of Cannon Street where pedestrian and bicycle facilities narrow and providing a new bridge over Santiago Creek). As such, the proposed project would not result in an increase in the generation of vehicle trips or VMT that would result in an increase GHG emissions.

Utilities, traffic signals and street lighting would be relocated outside the project limits, as necessary. Therefore, the proposed project would also not be a substantial source of energy, area waste, or water source emissions and would not generate GHG emissions that would have a significant impact on the environment.

Consistency with Greenhouse Gas Reduction Plans

The following discussion evaluates the proposed project according to the goals of the 2022 Scoping Plan and SCAG's Connect SoCal 2024.

2022 Scoping Plan. EO B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reduction target of at least 40 percent below 1990 levels by 2030 contained in EO B-30-15. CARB released the 2017 Scoping Plan to reflect the 2030 target set by EO B-30-15 and codified by SB 32.¹⁴ SB 32 builds on AB 32 and keeps us on the path toward achieving the State's 2050 objective of reducing emissions to 80 percent below 1990 levels. AB 197,

¹³ LSA Associates, Inc. (LSA). *Proposed Improvements to Cannon Street Traffic VMT Memo*. November 2023.

¹⁴ CARB. 2022. *2022 Scoping Plan for Achieving Carbon Neutrality*. December. Website: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf> (accessed April 2024).

the companion bill to SB 32, provides additional direction to CARB that is related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 that is intended to provide easier public access to air emission data collected by CARB was posted in December 2016. AB 1279 codifies the State goals of achieving net carbon neutrality by 2045 and maintaining net negative GHG emissions thereafter.

In addition, the 2022 Scoping Plan¹⁵ assesses progress toward the statutory 2030 target while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

The 2022 Scoping Plan focuses on building clean energy production and distribution infrastructure for a carbon-neutral future, including transitioning existing energy production and transmission infrastructure to produce zero-carbon electricity and hydrogen, and utilizing biogas resulting from wildfire management or landfill and dairy operations, among other substitutes. The 2022 Scoping Plan states that in almost all sectors, electrification will play an important role. The 2022 Scoping Plan evaluates clean energy and technology options and the transition away from fossil fuels, including adding four times the solar and wind capacity by 2045 and about 1,700 times the amount of current hydrogen supply. As discussed in the 2022 Scoping Plan, EO N-79-20 requires that all new passenger vehicles sold in California be zero-emission by 2035 and that all other fleets transition to zero-emission as fully as possible by 2045, which will reduce the percentage of fossil fuel combustion vehicles.

- **Energy-efficient measures** are intended to maximize energy efficiency building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and implementation mechanisms, and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. The proposed project would modify the existing traffic signals to account for the proposed additional lane; however, this energy use is expected to be minimal during the operational period and similar to existing conditions.. Therefore, the proposed project would not conflict with applicable energy measures.
- **Water conservation and efficiency measures** are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. The proposed project would not increase water usage. As such, the proposed project would not result in water source emissions. Therefore, the proposed project would not conflict with any of the water conservation and efficiency measures.

¹⁵ CARB. 2017. *California's 2017 Climate Change Scoping Plan*. November.

- The goal of **transportation and motor vehicle measures** is to develop regional GHG emissions reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the proposed project. The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025. As identified above, no additional trips or induced travel demand is anticipated due to implementation of the proposed project. Therefore, the proposed project would not conflict with the identified transportation and motor vehicle measures.

The proposed project would comply with existing State regulations adopted to achieve the overall GHG emission reduction goals identified in the 2022 Scoping Plan, EO B-30-15, SB 32, AB 197, and AB 1279.

SCAG's 2024 Regional Transportation Plan/Sustainable Communities Strategy (Connect SoCal 2024). SCAG's Connect SoCal 2024 identifies land use strategies that focus on new housing and job growth in areas served by high-quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The core vision in Connect SoCal 2024 is to better manage the existing transportation system through design management strategies, integrate land use decisions and technological advancements, create complete streets that are safe for all roadway users, preserve the transportation system, and expand transit and foster development in transit-oriented communities. Connect SoCal 2024 contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as a forecasted development pattern that is generally consistent with regional-level General Plan data. The forecasted development pattern, when integrated with the financially constrained transportation investments identified in Connect SoCal 2024, would reach the regional target of reducing GHG emissions from autos and light-duty trucks by 8 percent per capita by 2020 and 19 percent by 2035 (compared to 2005 levels). Connect SoCal 2024 does not require that local General Plans, Specific Plans, or zoning be consistent with Connect SoCal 2024, but it provides incentives for consistency for governments and developers.

Implementing Connect SoCal 2024 will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emissions reduction targets. As demonstrated in the Consistency with Applicable Air Quality Plans section, the proposed project does not meet the criteria identified in CEQA Guidelines Section 15205.b.2 (Projects of Statewide, Regional, or Areawide Significance) for projects of statewide, regional, or areawide significance. In addition, the proposed project would not require a change to the General Plan land use designation or the current zoning, and would be consistent with the County's General Plan and Zoning Ordinance. As such, the proposed project would not interfere with SCAG's ability to achieve the region's GHG reduction target of 19 percent below 2005 per capita emissions levels by 2035. Furthermore, the proposed project is not regionally significant per *State CEQA Guidelines* Section 15206 and as such, it would not conflict with the Connect SoCal 2024 targets since those targets were established and are applicable on a regional level.

Based on the nature of the proposed project, it is anticipated that implementation of the proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in Connect SoCal 2024.

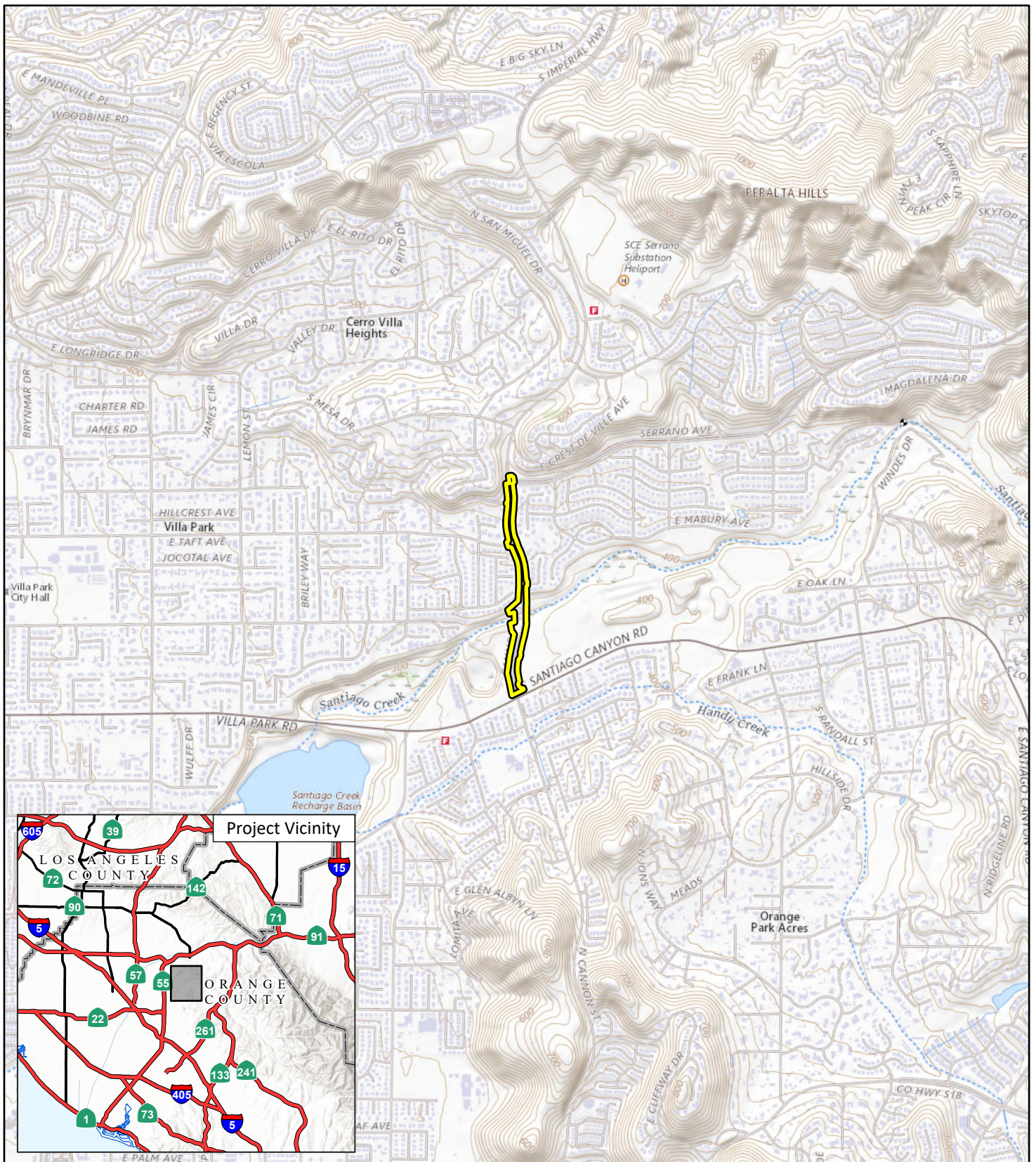
CONCLUSION

Based on the analysis presented above, construction and operation of the proposed project would not result in the generation of criteria air pollutants that would exceed SCAQMD thresholds of significance. Compliance with SCAQMD Rule 403: Fugitive Dust would further reduce construction dust impacts. The proposed project is not expected to produce significant emissions that would affect nearby sensitive receptors. The proposed project would also comply with SCAQMD Rule 1403: Asbestos, which would further reduce the risk for naturally occurring asbestos. The proposed project would also be consistent with the AQMP. The proposed project would also not result in objectionable odors affecting a substantial number of people. Emissions released during construction of the proposed project are estimated to be minimal and would not be cumulatively considerable. Once constructed, operational emissions would be similar to existing conditions. Therefore, the proposed project would not be anticipated to generate operational emissions that would result in a cumulatively considerable net increase of any criteria pollutant. The proposed project would also not result in the generation of substantial GHG emissions during construction or operation. Therefore, the proposed project would not generate GHG emissions that would have a significant impact on the environment. Additionally, the proposed project would not conflict with the State's GHG emissions reductions objectives embodied in the 2022 Scoping Plan and the 2024 RTP/SCS.

Attachments: A: Figures
B: CalEEMod Output

ATTACHMENT A

FIGURES




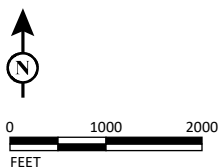
 Project Location

FIGURE 1

LSA






Cannon Street Widening Project
Project Location

SOURCE: USGS The National Map

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (10/18/2023)



LSA

-  Existing Pavement Edges
-  Proposed Lane Striping
-  City Boundaries



0 60 120
FEET

SOURCE: Nearmap (5/2023)

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (3/14/2024)

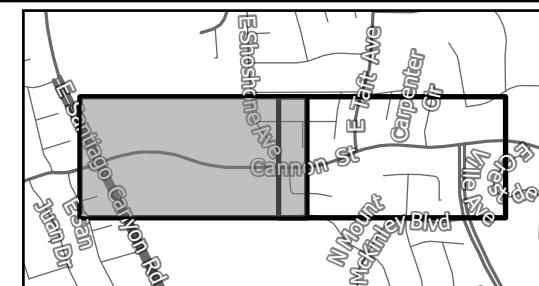


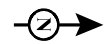
FIGURE 2
Sheet 1 of 2

Cannon Street Widening Project
Proposed Project Improvements



LSA

- Existing Pavement Edges
- Proposed Lane Striping
- - - City Boundaries



0 60 120
FEET

SOURCE: Nearmap (5/2023)

J:\20230893\GIS\Pro\Cannon Street Widening Project.aprx (3/14/2024)



FIGURE 2
Sheet 2 of 2

Cannon Street Widening Project
Proposed Project Improvements

ATTACHMENT B

CALEEMOD OUTPUT

Cannon St. Widening Custom Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Cannon St. Widening
Construction Start Date	8/1/2025
Lead Agency	City of Orange
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	23.2
Location	33.83121580550657, -117.7943215028904
County	Orange
City	Orange
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5774
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.22

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
Road Widening	2.50	Mile	2.00	0.00	—	—	—	—

Bridge/Overpass Construction	0.25	Mile	0.50	0.00	0.00	—	—	—
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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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.3	88.1	101	0.20	3.93	4.00	7.93	3.62	0.61	4.23	—	22,652	22,652	0.88	0.25	5.55	22,753
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.3	88.2	100	0.20	3.93	4.00	7.93	3.62	0.61	4.23	—	22,586	22,586	0.89	0.25	0.14	22,682
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.44	20.8	23.7	0.05	0.93	0.96	1.89	0.86	0.15	1.00	—	5,341	5,341	0.21	0.06	0.59	5,365
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	3.79	4.32	0.01	0.17	0.17	0.34	0.16	0.03	0.18	—	884	884	0.03	0.01	0.10	888
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	—	—	150	—	—	55.0	—	—	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	—	—	150	—	—	55.0	—	—	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	10.3	88.1	101	0.20	3.93	4.00	7.93	3.62	0.61	4.23	—	22,652	22,652	0.88	0.25	5.55	22,753
2026	6.16	52.6	61.5	0.13	2.08	2.73	4.82	1.92	0.42	2.33	—	15,154	15,154	0.59	0.16	3.38	15,221
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	10.3	88.2	100	0.20	3.93	4.00	7.93	3.62	0.61	4.23	—	22,586	22,586	0.89	0.25	0.14	22,682
2026	9.82	81.0	98.9	0.20	3.54	4.00	7.54	3.25	0.61	3.86	—	22,556	22,556	0.89	0.25	0.13	22,651
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.44	20.8	23.7	0.05	0.93	0.96	1.89	0.86	0.15	1.00	—	5,286	5,286	0.21	0.06	0.59	5,309
2026	2.23	18.9	23.0	0.05	0.77	0.94	1.72	0.71	0.15	0.86	—	5,341	5,341	0.21	0.06	0.56	5,365
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.44	3.79	4.32	0.01	0.17	0.17	0.34	0.16	0.03	0.18	—	875	875	0.03	0.01	0.10	879
2026	0.41	3.44	4.20	0.01	0.14	0.17	0.31	0.13	0.03	0.16	—	884	884	0.03	0.01	0.09	888

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.44	9.01	0.01	0.47	—	0.47	0.43	—	0.43	—	1,264	1,264	0.05	0.01	—	1,268
Dust From Material Movement	—	—	—	—	—	0.28	0.28	—	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.58	0.62	< 0.005	0.03	—	0.03	0.03	—	0.03	—	86.6	86.6	< 0.005	< 0.005	—	86.9
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.11	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	14.3	14.3	< 0.005	< 0.005	—	14.4

Dust From Material Movement	—	—	—	—	—	< 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	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.54	0.00	0.00	0.36	0.36	0.00	0.08	0.08	—	365	365	< 0.005	0.01	1.38	370
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	24.1	24.1	< 0.005	< 0.005	0.04	24.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.99	3.99	< 0.005	< 0.005	0.01	4.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Grading & Excavation (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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.97	87.6	95.1	0.20	3.93	—	3.93	3.61	—	3.61	—	21,122	21,122	0.86	0.17	—	21,195
Dust From Material Movement	—	—	—	—	—	2.62	2.62	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.97	87.6	95.1	0.20	3.93	—	3.93	3.61	—	3.61	—	21,122	21,122	0.86	0.17	—	21,195
Dust From Material Movement	—	—	—	—	—	2.62	2.62	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.28	20.0	21.8	0.04	0.90	—	0.90	0.83	—	0.83	—	4,836	4,836	0.20	0.04	—	4,853
Dust From Material Movement	—	—	—	—	—	0.60	0.60	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	3.66	3.97	0.01	0.16	—	0.16	0.15	—	0.15	—	801	801	0.03	0.01	—	803

Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.36	0.36	5.74	0.00	0.00	1.34	1.34	0.00	0.31	0.31	—	1,361	1,361	0.02	0.05	5.15	1,381
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.8	63.8	< 0.005	0.01	0.17	66.7
Hauling	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.22	110
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.36	0.40	4.96	0.00	0.00	1.34	1.34	0.00	0.31	0.31	—	1,295	1,295	0.02	0.05	0.13	1,310
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	63.8	63.8	< 0.005	0.01	< 0.005	66.5
Hauling	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	104	104	0.01	0.02	0.01	110
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.19	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	301	301	< 0.005	0.01	0.51	304
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.6	14.6	< 0.005	< 0.005	0.02	15.2
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.9	23.9	< 0.005	< 0.005	0.02	25.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.22	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	49.8	49.8	< 0.005	< 0.005	0.08	50.4
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.42	2.42	< 0.005	< 0.005	< 0.005	2.52
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.95	3.95	< 0.005	< 0.005	< 0.005	4.16

3.5. Linear, Grading & Excavation (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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.47	80.5	94.1	0.20	3.54	—	3.54	3.25	—	3.25	—	21,119	21,119	0.86	0.17	—	21,191
Dust From Material Movement	—	—	—	—	—	2.62	2.62	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	6.62	7.74	0.02	0.29	—	0.29	0.27	—	0.27	—	1,736	1,736	0.07	0.01	—	1,742
Dust From Material Movement	—	—	—	—	—	0.22	0.22	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.21	1.41	< 0.005	0.05	—	0.05	0.05	—	0.05	—	287	287	0.01	< 0.005	—	288
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	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.36	4.66	0.00	0.00	1.34	1.34	0.00	0.31	0.31	—	1,270	1,270	0.02	0.05	0.12	1,285
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.8	62.8	< 0.005	0.01	< 0.005	65.5
Hauling	< 0.005	0.13	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	103	103	0.01	0.02	0.01	108
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.40	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	106	106	< 0.005	< 0.005	0.16	107
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.16	5.16	< 0.005	< 0.005	0.01	5.39
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.42	8.42	< 0.005	< 0.005	0.01	8.85
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.5	17.5	< 0.005	< 0.005	0.03	17.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.89
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.39	1.39	< 0.005	< 0.005	< 0.005	1.46

3.7. Linear, Drainage, Utilities, & Sub-Grade (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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	5.92	52.3	57.7	0.13	2.08	—	2.08	1.91	—	1.91	—	14,137	14,137	0.57	0.11	—	14,186
Dust From Material Movement	—	—	—	—	—	1.79	1.79	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.92	52.3	57.7	0.13	2.08	—	2.08	1.91	—	1.91	—	14,137	14,137	0.57	0.11	—	14,186
Dust From Material Movement	—	—	—	—	—	1.79	1.79	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	10.7	11.9	0.03	0.43	—	0.43	0.39	—	0.39	—	2,905	2,905	0.12	0.02	—	2,915
Dust From Material Movement	—	—	—	—	—	0.37	0.37	—	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	1.96	2.16	0.01	0.08	—	0.08	0.07	—	0.07	—	481	481	0.02	< 0.005	—	483
Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	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	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.21	3.69	0.00	0.00	0.91	0.91	0.00	0.21	0.21	—	912	912	0.01	0.03	3.17	925
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	103	103	0.01	0.02	0.21	109
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.24	3.18	0.00	0.00	0.91	0.91	0.00	0.21	0.21	—	867	867	0.01	0.03	0.08	878
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.13	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	103	103	0.01	0.02	0.01	108
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.68	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	181	181	< 0.005	0.01	0.28	183
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	21.2	21.2	< 0.005	< 0.005	0.02	22.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.9	29.9	< 0.005	< 0.005	0.05	30.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.51	3.51	< 0.005	< 0.005	< 0.005	3.69

3.9. Linear, 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	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40	13.2	20.5	0.03	0.53	—	0.53	0.49	—	0.49	—	3,104	3,104	0.13	0.03	—	3,115
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.37	2.13	< 0.005	0.06	—	0.06	0.05	—	0.05	—	323	323	0.01	< 0.005	—	324
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.25	0.39	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.5	53.5	< 0.005	< 0.005	—	53.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	2.24	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	553	553	0.01	0.02	1.92	562
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.02	0.21	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.6	55.6	< 0.005	< 0.005	0.09	56.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.20	9.20	< 0.005	< 0.005	0.01	9.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	8/1/2025	9/5/2025	5.00	25.0	—
Linear, Grading & Excavation	Linear, Grading & Excavation	9/6/2025	2/11/2026	5.00	113	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	2/12/2026	5/28/2026	5.00	75.0	—
Linear, Paving	Linear, Paving	5/29/2026	7/21/2026	5.00	38.0	—

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
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	4.00	8.00	36.0	0.38

Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	5.00	8.00	6.00	0.82
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	7.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	4.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	5.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	5.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	6.00	8.00	84.0	0.37
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	3.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	5.00	8.00	423	0.48

Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	5.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Signal Boards	Electric	Average	5.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Backhoes	Diesel	Average	5.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	27.5	18.5	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	103	18.5	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	10.2	HHDT,MHDT
Linear, Grading & Excavation	Hauling	1.50	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	70.0	18.5	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	10.2	HHDT,MHDT

Linear, Drainage, Utilities, & Sub-Grade	Hauling	1.51	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	42.5	18.5	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	10.2	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

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)

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)
Linear, Grubbing & Land Clearing	0.00	0.00	2.50	0.00	—
Linear, Grading & Excavation	1,700	0.00	2.50	0.00	—

Linear, Drainage, Utilities, & Sub-Grade	0.00	900	2.50	0.00	—
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5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	2.00	100%
Bridge/Overpass Construction	0.50	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	294	532	0.03	< 0.005
2026	440	532	0.03	< 0.005

8. User Changes to Default Data

Screen	Justification
Construction: Paving	Bridge roadway will be concrete.