

APPENDIX E

Greenhouse Gas Emissions Study



Technical Memorandum

TO: Cristina Lowery
Michael Baker International

FROM: Terry A. Hayes Associates Inc.

DATE: September 26, 2025

RE: **Granada Trunk Line Replacement Project – Greenhouse Gas Emissions Study**

Introduction

Terry A. Hayes Associates Inc. (TAHA) has completed a Greenhouse Gas (GHG) Emissions Study (Study) for the Los Angeles Department of Water and Power (LADWP) Granada Trunk Line Replacement (GTL) Project (proposed project) in accordance with the provisions of the California Environmental Quality Act (CEQA) Statute and Guidelines. This Study is organized as follows:

- Introduction
- Project Description
- GHG Emissions Topical Information
- Existing Setting
- Regulatory Framework
- Significance Thresholds
- Methodology
- Impact Assessment
- References

Project Description

The LADWP proposes replacing Units 1 and 2 of the GTL to increase safety and reliability; to allow for greater operational flexibility for the West Valley area of the City and the De Soto Reservoir; and to convey future local water supplies while reducing dependence on imported water. The proposed project would include the replacement of an approximately 13,228-foot portion of the GTL within the Rinaldi Street right-of-way (ROW) between Balboa Boulevard and Yolanda Avenue (Unit 1), and an approximately 13,183-foot portion of the GTL between Yolanda Avenue and the De Soto Reservoir Regulator Station (Unit 2), with a new 48-inch diameter Earthquake Resistant Ductile Iron Pipe. The replacement pipe would be installed within the Rinaldi Street ROW, generally parallel to the existing trunk line approximately 900 feet north of the existing alignment. At its eastern terminus, the GTL would tie into the existing GTL at Balboa Avenue and Rinaldi Street. At its western terminus, the proposed GTL replacement would tie into the existing De Soto Reservoir Regulator Station, located near the intersection of De Soto Avenue and Rinaldi Street. The existing GTL would be abandoned in place.



The proposed project is located within the Granada Hills – Knollwood and Chatsworth – Porter Ranch community plan areas, specifically within the Granada Hills and Porter Ranch neighborhoods, within the City of Los Angeles. The eastern terminus of the replacement pipe is located approximately 21 miles northwest of downtown Los Angeles. The replacement pipe would extend along Rinaldi Street, within the public ROW, from Balboa Boulevard in Granada Hills to approximately 500 feet east of De Soto Avenue, at the De Soto Reservoir, in Porter Ranch. **Figure 1** shows the regional vicinity and **Figure 2** shows the proposed project location. **Figures 3** and **4** show the project alignment.

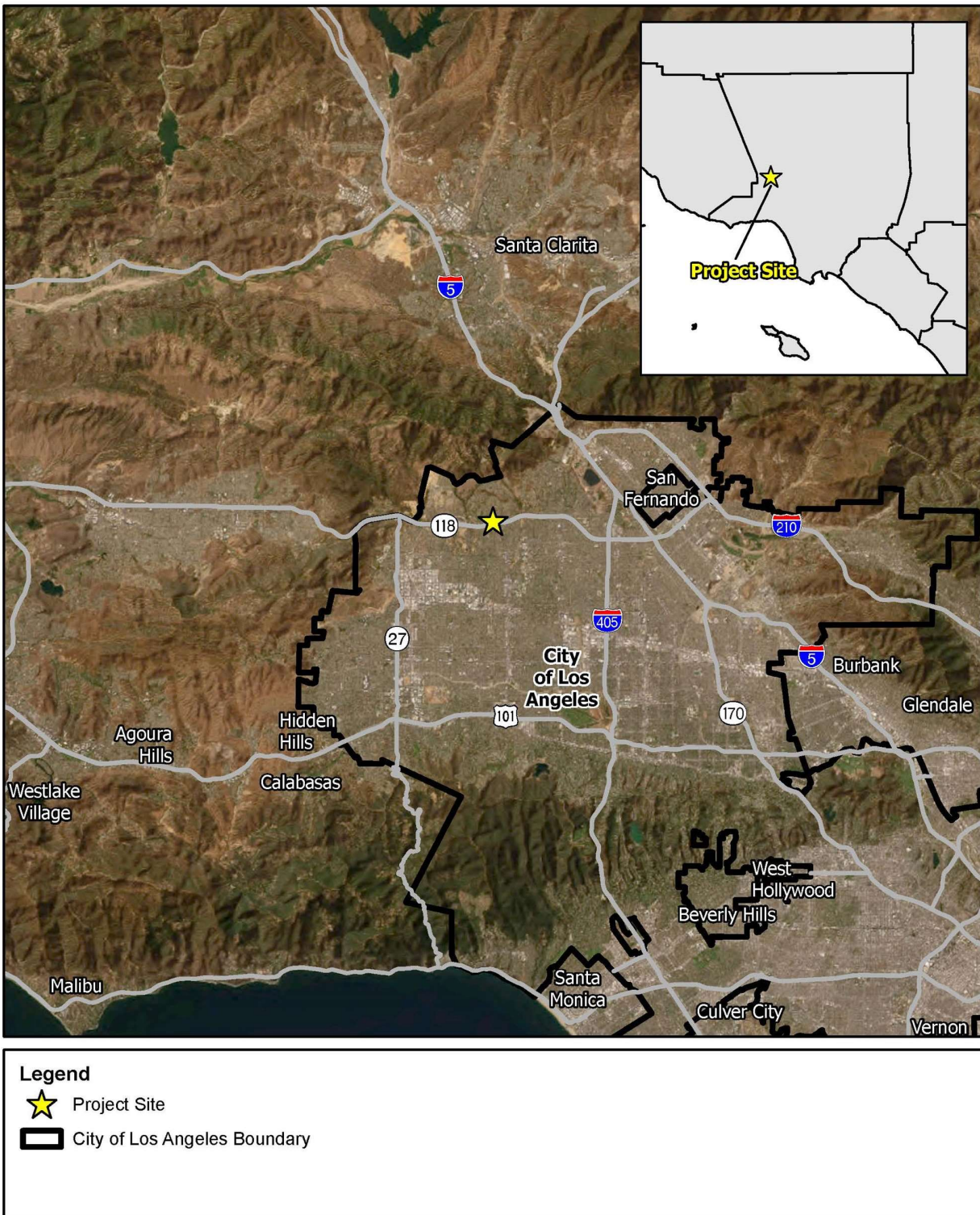
CONSTRUCTION

Construction of Unit 1 is planned to commence in July 2028 and conclude in July 2036. Construction of Unit 2 is planned to commence in September 2030 and conclude in March 2038. Construction would occur between the hours of 7:00 a.m. and 5:00 p.m., Monday through Friday. Nighttime work may be needed during construction that requires crossing a major street. This would require a permit to extend construction activities beyond regular daytime hours. The open trench construction would progress along the alignment at a rate of approximately 40 linear feet of pipeline installation per day, with a maximum of 500 feet of open trench along the roadway at any time. Pipe jacking would progress along the pipe jacking locations at a rate of approximately 9 to 10 linear feet per day after the pits are constructed. The existing trunk line would be abandoned and left in place; however, it would remain in service during construction. As such, interruptions in water service would not occur during the construction process.

Construction would typically involve two crews of approximately eight workers each. Approximately 800,000 square feet of roadway would be excavated and repaved. The total estimated amount of excavation would be approximately 75,000 cubic yards, and the total export would be approximately 100,000 cubic yards. A total of approximately 75,000 cubic yards of slurry would be imported throughout the construction process for use as backfill. Daily vehicular trips throughout construction would include a maximum of 10 round trips per day for transportation of construction equipment to and from the work areas; approximately 25 round trips per day for transportation of construction workers to and from the work areas (two crews); and 20 round trips per day for haul trucks transporting materials including the import of cement-slurry (i.e., dump trucks). Partial lane closures would be necessary for installing the new pipeline and its appurtenances. Construction equipment and materials may be stored at off-site staging areas; however, staging areas would be located adjacent or near the construction areas.

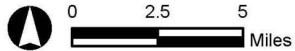
OPERATIONS

The replacement pipeline is anticipated to have an operational life of 100 years, and the replacement valves are anticipated to have an operational life of 70 years. The entire trunk line would be located underground and would not be visible during operations. The GTL would remain pressurized at all times to supply water to the surrounding service area. Connections to various trunk lines would be opened as necessary to support the water transmission system. These functions would not require any additional supplies from the City's drinking water system. Operational activities would be limited to scheduled maintenance and emergency repair. Maintenance activities would be minimal and would be similar to those that occur under existing conditions, including exercising valves and replacing or repairing worn appurtenances to ensure proper performance over the life of the facilities. No permanent workers would be required to operate or maintain the GTL.



GRANADA TRUNK LINE REPLACEMENT PROJECT

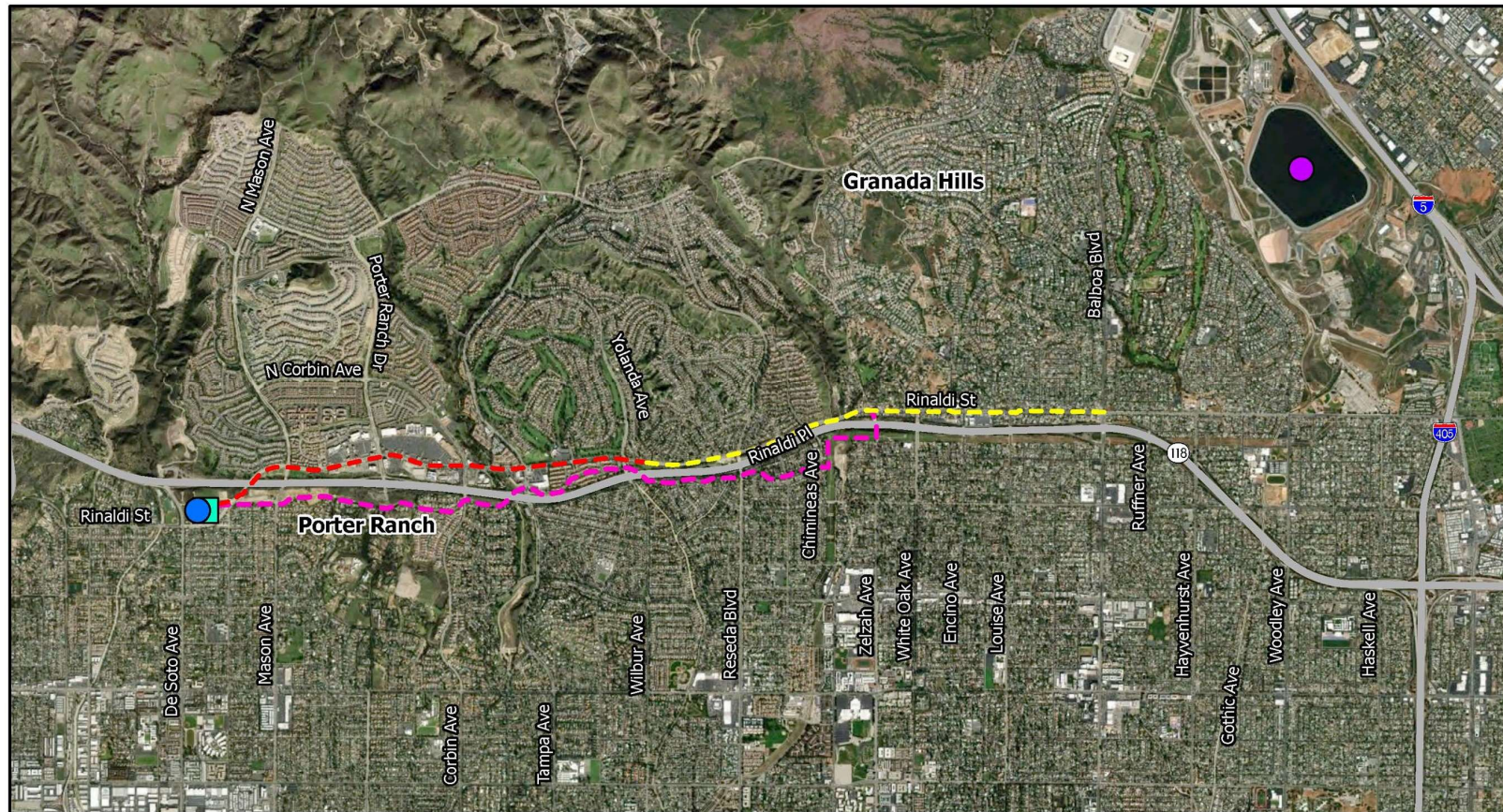
Michael Baker
INTERNATIONAL



Source: Esri, ArcGIS Online, County of Los Angeles

Regional Vicinity Map

Figure 1



Legend

- Van Norman Reservoir (existing)
- De Soto Reservoir (existing)
- De Soto Pump Station (existing)

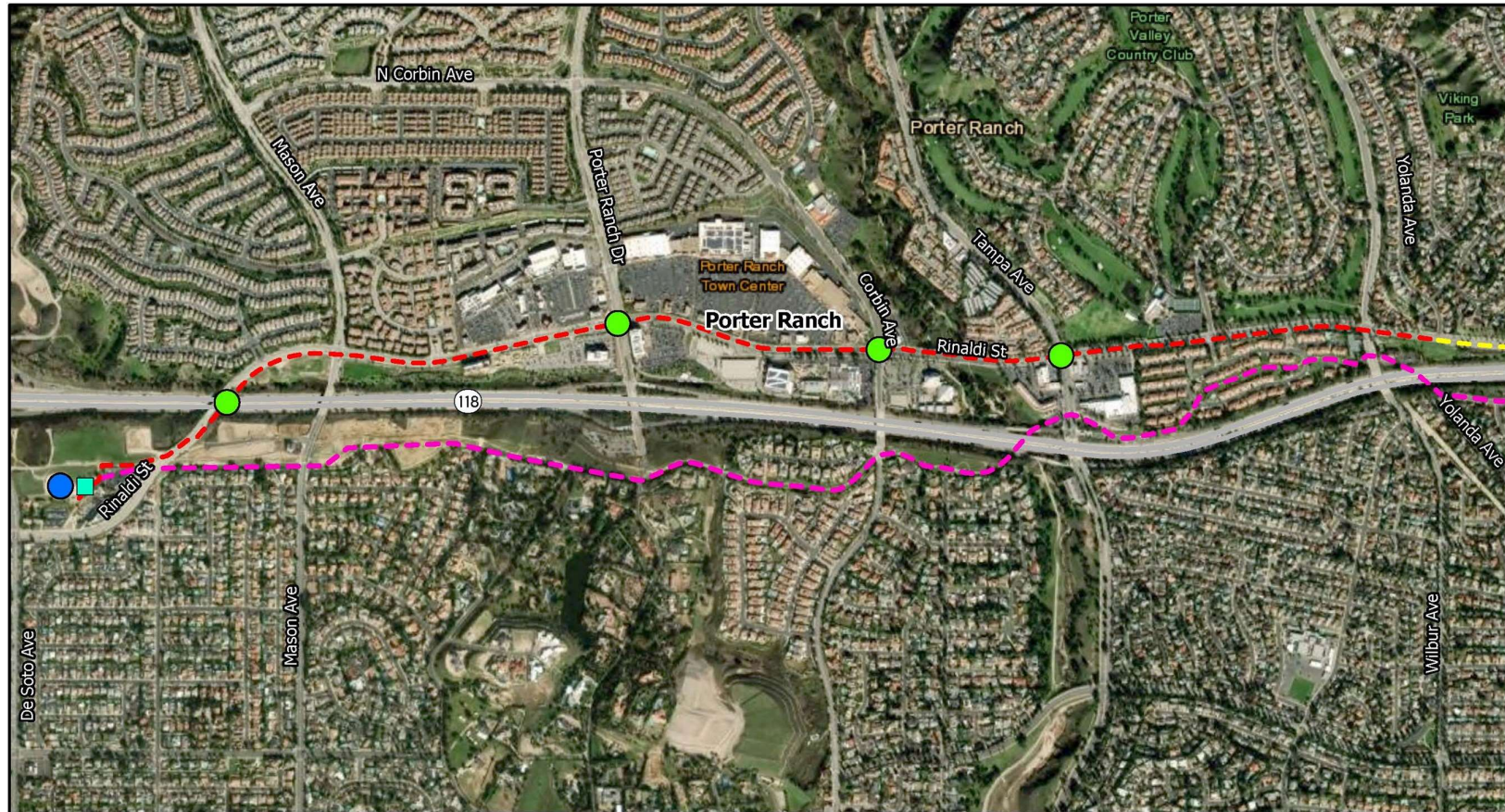
- Proposed Unit 1: 13,228 feet From Balboa Blvd. to Yolanda Ave. on Rinaldi St.
- Proposed Unit 2: 13,183 feet From Yolanda Ave. to De Soto Reservoir RS on Rinaldi St.
- Existing Granada Trunk Line - to be abandoned in place



Legend

- Proposed Pipe Jacking Location: Rinaldi St. and Reseda Blvd
- Proposed Unit 1 Alignment
- Proposed Unit 2 Alignment
- Existing Granada Trunk Line - to be abandoned in place





Legend

- De Soto Pump Station (existing)
- De Soto Reservoir (existing)
- Proposed Pipe Jacking Locations: Rinaldi St. and Porter Ranch Dr., Rinaldi St. and Corbin Ave., Rinaldi St. and Tampa Ave., Rinaldi St. and SR-118

- Proposed Unit 1 Alignment
- Proposed Unit 2 Alignment
- Existing Granada Trunk Line - to be abandoned in place

GHG Emissions Topical Information

The term “greenhouse gas [GHG] emissions” refers to a class of gaseous compounds that are generally understood to affect global climate conditions, including playing a critical role in determining and regulating temperatures near the Earth’s surface. The “greenhouse effect” analogizes the Earth and its atmosphere to a greenhouse with glass panes that let heat from sunlight in and reduce the amount of heat that escapes. GHGs—the most environmentally prevalent of which are subject to regulations include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O)—maintain the average surface temperature of the Earth close to 60-degree Fahrenheit (°F). Without the natural greenhouse effect, the Earth's surface would be about 61°F cooler.¹ In addition to CO₂, CH₄, and N₂O, identified GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), black carbon (black carbon is the most strongly light-absorbing component of particulate matter emitted from burning fuels such as coal, diesel, and biomass), and water vapor. More specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth’s atmosphere, but retain some of the low frequency infrared energy, which is radiated back from the Earth towards space, resulting in a warming of the atmosphere.

Not all GHGs possess the same ability to induce climate change. CO₂ is the most abundant pollutant that contributes to climate change through fossil fuel combustion and other anthropogenic sources. Other GHGs are less abundant but have higher global warming potential (GWP) than CO₂. GWP is based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO₂, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO₂. The larger the GWP, the more that a given gas warms the Earth compared to CO₂ over that time period. To account for this higher potential, emissions of other GHGs are commonly quantified in the units of equivalent mass of carbon dioxide (CO₂e). **Table 1** summarizes the atmospheric lifetimes and GWPs for GHGs that are commonly subject to emissions monitoring and regulation.

TABLE 1: GLOBAL WARMING POTENTIAL FOR VARIOUS GREENHOUSE GASES			
Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide (CO ₂)	--	1	1
Methane (CH ₄)	12	21	25
Nitrous Oxide (N ₂ O)	114	310	298
Nitrogen Trifluoride	740	Unknown	17,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900	22,800
Perfluorocarbons (PFCs)	2,600-50,000	6,500-9,200	7,390-12,200
Hydrofluorocarbons (HFCs)	1-270	140-11,700	124-14,800
SOURCE: California Air Resources Board, <i>California's 2017 Climate Change Scoping Plan</i> , 2017.			

¹California Environmental Protection Agency Climate Action Team, *Climate Action Report to Governor Schwarzenegger and the California Legislator*, March 2006.

Existing Setting

Emissions of GHGs to the atmosphere are the result of both natural and human-influenced activities. Volcanic activity, forest fires, decomposition, industrial processes, landfills, consumption of fossil fuels for power generation, transportation, heating, and cooling are the primary sources of GHG emissions. Without human activity, the Earth would maintain an approximate, but varied, balance between the emission of GHGs into the atmosphere and the storage of GHG in oceans and terrestrial ecosystems. Increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.) has contributed to a rapid increase in atmospheric levels of GHGs over the last 150 years.

The California Air Resources Board (CARB) is responsible for preparing, adopting, and updating California's GHG emissions inventory under Assembly Bill (AB) 1803 (2006). The State's annual GHG emissions inventory provides an important tool for establishing historical emissions trends and tracking California's progress in reducing GHG emissions. The 2024 edition of the CARB GHG inventory includes emissions of seven GHGs identified in AB 32 for the years 2000–2022. **Table 2** shows statewide GHG emissions from 2012 to 2022 by Scoping Plan sector. The transportation sector represents California's largest source of GHG emissions and contributed approximately 38 percent of total annual emissions in 2022. Since 2012, emissions from the transportation sector gradually increased over the ensuing decade, then have begun to decrease into the 2020s despite statewide growth in population. Overall, the 2022 emissions were approximately 15 percent lower than the emissions levels in 2012.

TABLE 2: CALIFORNIA GREENHOUSE GAS EMISSIONS INVENTORY											
Sector	Annual CO₂e Emissions (Million Metric Tons)										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Transportation	156.9	156.8	157.5	161.1	164.8	166.0	164.8	161.7	135.2	145.1	139.9
Electric Power	99.4	94.0	90.3	86.3	70.8	64.4	65.0	60.2	59.5	62.3	59.8
Industrial	80.6	82.6	85.0	82.7	81.3	81.7	82.3	80.9	73.6	74.2	72.7
Commercial / Residential	39.1	39.0	35.5	37.2	37.7	38.3	37.5	40.6	39.0	38.8	39.5
Agriculture	35.2	33.7	33.7	32.5	32.1	31.6	32.0	31.2	31.4	30.4	29.8
High GWP Emissions	15.8	16.8	17.9	18.8	19.5	20.1	20.6	20.8	21.3	21.3	21.3
Recycling / Waste	8.4	8.3	8.2	8.1	7.9	8.2	8.2	8.3	8.5	8.3	8.2
Total	435.5	431.4	428.1	426.8	414.1	410.3	410.5	403.7	368.5	380.4	371.1
SOURCE: California Air Resources Board, <i>Current California GHG Emission Inventory Data</i> , 2024.											

Between October 23, 2015, and February 18, 2016, an exceptional natural gas leak event occurred at the Aliso Canyon natural gas storage facility that resulted in unexpected GHG emissions of considerable magnitude. The exceptional incident released approximately 109,000 metric tons of CH₄, which equated to approximately 1.96 million metric tons of carbon dioxide equivalents (MMTCO₂e) of unanticipated emissions in 2015 and an additional 0.52 MMTCO₂e in 2016. Also, beginning March 2020, the COVID-19 pandemic brought about a partial nationwide quarantine, which resulted in less travel due to the temporary closure of many commercial and industrial uses, which is reflected in the stark decrease from 2019 to 2020. The 2022 data represent a normalizing of the long-term trend.

Regulatory Framework

In response to growing scientific and political concern with global climate change, several plans, regulations, and programs that include policies, requirements, and guidelines regarding GHG emissions have been adopted and promulgated at the federal, state, regional, and local levels. The following provides a summary of the most pertinent GHG regulations and policies in place to the proposed project; this list is not comprehensive or exhaustive of all such regulatory and judicial actions involving GHG emissions.

FEDERAL

Federal Clean Air Act. The United States Supreme Court has ruled that CO₂ and other GHGs are pollutants under the Federal Clean Air Act (FCAA), which the United States Environmental Protection Agency (USEPA) may regulate. On December 7, 2009, the USEPA made two distinct findings: 1) that the current and projected concentrations of the six key GHGs (CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations; and 2) that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.²

The United States Supreme Court has ruled that the USEPA exceeded its statutory authority under the FCAA when it determined that stationary source emissions of GHGs would trigger permitting obligations under the Prevention of Significant Deterioration (PSD) program and Title V of the FCAA.³ The Court, however, upheld those portions of USEPA's rulemaking that require a source to apply best available control technology (BACT) to GHG emissions where the source would otherwise trigger PSD permitting on account of its emissions of other pollutants. The Supreme Court's decision was limited to USEPA's regulation of GHG emissions under the PSD and Title V provisions of the FCAA, and it left unanswered other questions regarding USEPA's permitting and BACT authority under the PSD program, and the USEPA's efforts to regulate GHG emissions from stationary sources.

The Federal Greenhouse Gas Reporting Program (40 Code of Federal Regulations Part 98) requires mandatory reporting of GHG emissions from sources that emit 25,000 metric tons or more of carbon dioxide equivalent per year in the United States. However, on September 12, 2025, USEPA Lee Zeldin announced a proposed rule to end the burdensome Greenhouse Gas Reporting Program. As it currently exists, the Greenhouse Gas Reporting Program requires 47 source categories, covering over 8,000 facilities and suppliers to calculate and submit GHG emissions reporting annually. Following a careful review, the USEPA proposed that there is no requirement under FCAA Section 114(a) to collect GHG emission information from businesses nor is continuing the ongoing costly data collection useful to fulfill any of the agency's statutory obligations. Therefore, EPA is proposing to remove all GHG reporting requirements, except for those subject to the Waste Emissions Charge (WEC). FCAA Section 136 only requires data collection for segments of subpart W (petroleum and natural gas systems) subject to the WEC. On July 4, 2025, President Trump signed the One Big Beautiful Bill Act, which amended FCAA Section 136(g), so that the WEC now applies to emissions reported for calendar year 2034 and for each year thereafter. In accordance with the law, the USEPA will not be collecting subpart W data until 2034.

²Supreme Court of the United States, *Massachusetts et al. v. Environmental Protection Agency et al.*, April 2, 2007.

³Supreme Court of the United States, *Utility Air Regulatory Group v. Environmental Protection Agency et al.*, June 23, 2014.

Corporate Average Fuel Economy Standards. In response to *the Massachusetts v. Environmental Protection Agency* ruling, President George W. Bush issued Executive Order 13432 in 2007, directing the USEPA, the United States Department of Transportation (USDOT), and the United States Department of Energy (USDOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. The National Highway Traffic Safety Administration (NHTSA) subsequently issued multiple final rules regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011 and later for model years 2012 through 2016. On May 19, 2009, the President of the United States announced a national policy for fuel efficiency and emissions standards in the auto industry. The adopted federal standard applies to passenger cars and light-duty trucks for model years 2012 through 2016, which set a combined fleetwide average of 36.9 to 37 for the model years affected.^{4,5}

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011 the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through 2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program would reduce GHG emissions and fuel consumption for the affected vehicles by six to 23 percent over the 2010 baselines. Building on the first phase of standards, in August 2016, the EPA and NHTSA finalized Phase 2 standards for medium and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. The Phase 2 standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons.⁶

Energy Independence and Security Act. The Energy Independence and Security Act of 2007 facilitated the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that required fuel producers to use at least 36 billion gallons of biofuel by 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances; and
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020.

STATE

Executive Order S-3-05. Executive Order S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32. The California Global Warming Solutions Act of 2006, also known as AB 32, focuses on reducing GHG emissions in California and requires the CARB to adopt rules and regulations that would

⁴USEPA, *Final Rule for Model Year 2012 – 2016 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards*, 2010, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2012-2016-light-duty-vehicle>, accessed March 12, 2025.

⁵NHTSA, *Corporate Average Fuel Economy Standards*.

⁶USEPA, *EPA and NHTSA Adopt Standards to Reduce GHG and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond*, August 2016.

achieve GHG emissions equivalent to Statewide levels in 1990 by 2020. The 2020 target reductions were estimated to be 174 million metric tons of CO₂e. In November 2017, CARB adopted the final 2017 Scoping Plan: The Strategy for Achieving California's 2030 GHG target (2017 Scoping Plan). The 2017 Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals. Most recently, CARB adopted the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan). This plan was developed to outline a technologically feasible, cost-effective, and equity-focused path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan sets a target of reducing statewide GHG emissions by 85 percent by 2045 to achieve its ambitious goals. Additionally, CARB forecasts that effective implementation of the 2022 Scoping Plan will reduce statewide demand for petroleum by 94 percent and cut air pollution by 71 percent by the 2045 horizon year. The 2022 Scoping Plan includes a commitment to build no new fossil gas-fired power plants and increases support for mass transit.

Senate Bill 375. Provides a means for achieving AB 32 goals through the reduction in emissions by cars and light trucks. Senate Bill (SB) 375 requires Regional Transportation Plans (RTPs) prepared by Metropolitan Planning Organizations (MPOs) to include Sustainable Communities Strategies (SCSs).

Senate Bill 743. Encourages land use and transportation planning decisions and investments that reduce vehicle miles traveled (VMT), which contribute to GHG emissions, as required by AB 32.

Executive Order B-30-15. This policy set a goal to reduce GHG emissions 40 percent below their 1990 levels by 2030. The Executive Order establishes GHG emissions reduction targets to reduce emissions to 80 percent below 1990 levels by 2050 and sets an interim target of emissions reductions for 2030 as being necessary to guide regulatory policy and investments in California and put California on the most cost-effective path for long-term emissions reductions.

Senate Bill 32. This bill required a commitment to reducing statewide GHG emissions by 2020 to 1990 levels and by 2030 to 40 percent less than 1990 levels.

Renewable Portfolio Standard. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017 as a Renewable Portfolio Standard (RPS). Subsequent amendments provided additional targets throughout the years. Most recently, on October 7, 2015, SB 350 (Chapter 547, Statutes of 2015), also known as the Clean Energy and Pollution Reduction Act, further increased the RPS to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 also requires the State to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. The 2017 Climate Change Scoping Plan incorporated the SB 350 standards and estimated the GHG reductions would account for approximately 21 percent of the Scoping Plan reductions.⁷ On September 10, 2018, SB 100, provided additional RPS targets of 44 percent by 2024, 52 percent by 2027, and 60 percent by 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by 2045.⁸

⁷CARB, *California's 2017 Climate Change Scoping Plan*, Table 3, November 2017. Calculated as: $(108 - 53) / 260 = 21$ percent.

⁸California Legislative Information, *SB-100 California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases*.

REGIONAL

South Coast Air Quality Management District. The City of Los Angeles is located in the South Coast Air Basin (SCAB), which consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside Counties, in addition to the San Geronio Pass area in Riverside County. The South Coast Air Quality Management District (SCAQMD) is responsible for air quality planning in the SCAB and developing rules and regulations to bring the area into attainment of the ambient air quality standards. This is accomplished through air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles.

In 2008, the SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.⁹ A GHG Significance Threshold Working Group was formed to further evaluate potential GHG significance thresholds.¹⁰ The SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 MTCO₂e per year. Under this proposal, commercial/residential projects that emit fewer than 3,000 MTCO₂e per year would be assumed to have a less-than-significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 MTCO₂e per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). The Working Group has been inactive since 2011, and the SCAQMD has not formally adopted any GHG significance threshold for other jurisdictions.

Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy. To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2024–2050 RTP/SCS in April 2024. The vision for the region incorporates a range of best practices for increasing transportation choices, reducing dependence on personal automobiles, further improving air quality, and encouraging growth in walkable, mixed-use communities with ready access to transit infrastructure and employment. More and varied housing types and employment opportunities would be located in and near job centers, transit stations and walkable neighborhoods where goods and services are easily accessible via shorter trips. To support shorter trips, people would have the choice of using neighborhood bike networks, car share or micro-mobility services, such as shared bicycles or scooters. For longer commutes, people would have expanded regional transit services and more employer incentives to carpool or vanpool. Other longer trips would be supported by on-demand services, such as microtransit, carshare, and citywide partnerships with ride hailing services. For those that choose to drive, hotspots of congestion would be less difficult to navigate due to cordon pricing and using an electric vehicle will be easier due to an expanded regional charging network.

⁹SCAQMD, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008.

¹⁰SCAQMD, *Greenhouse Gases CEQA Significance Thresholds*, <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds>, accessed March 12, 2025.

LOCAL

Los Angeles Department of Water and Power Strategic Plan. The 2022 Power Strategic Long-Term Resource Plan (SLTRP, also referred to as the “LA100 Plan”) serves as a comprehensive roadmap through 2045 that guides the LADWP Power System in its efforts to supply reliable electricity in an environmentally responsible and cost-effective manner. The 2022 SLTRP is largely driven by Mayoral directives and City Council motions that instructed the LADWP to prepare an SLTRP to achieve 100 percent carbon-free energy by 2035. Previous iterations of the SLTRP—including the most recent 2017 SLTRP—only considered incremental updates in clean energy objectives which reflected the general cadence of development within the power utility industry. The 2022 SLTRP includes numerous updates related to new renewable projects, associated transmission upgrade cost and fuel cost assumptions, staffing requirements, and several other critical updates. The SLTRP uses system modeling tools to analyze and determine the long-term economic, environmental, and operational impact of alternative resource portfolios by simulating the integration of new resource alternatives within the LADWP’s existing mix of assets and providing the analytic results to inform the selection of a recommended case that considers various factors such as minimal adverse rate impacts on customers, prioritizing environmental stewardship and equity, and maintaining reliability and resiliency.

City of Los Angeles Sustainability Initiatives. The City of Los Angeles first addressed the issue of global climate change in *GreenLA, An Action Plan to Lead the Nation in Fighting Global Warming* (“LA Green Plan/ClimateLA”) in 2007.¹¹ This document outlines the goals and actions the City has established to reduce the generation and emission of GHGs from both public and private activities.

On April 8, 2015, Mayor Eric Garcetti released Los Angeles’ first ever *Sustainable City pLAn* (the *pLAn*).¹² The *pLAn* sets the course for a cleaner environment and stronger economy, with commitment to equity as its foundation. The *pLAn* is made up of short term (2017 horizon) and long term (2025 and 2035 horizons) targets in various topic areas, including: water, solar power, energy-efficient buildings, carbon and climate leadership, waste and landfills, housing and development, mobility and transit, and air quality, among others. The *pLAn* set out an ambitious vision for cutting GHG emissions, reducing the impact of climate change and building support for national and global initiatives. The 2015 *Sustainable City pLAn* sets targets to reduce GHG emissions below the 1990 baseline level by 45 percent by 2025, 60 percent by 2035, and 80 percent by 2050. Specific targets included increasing the proportion of new housing units built within 1,500 feet of transit to 57 percent by 2025, reducing VMT per capita by five percent by 2025, and increasing trips made by walking, biking, or transit by at least 35 percent by 2025.

In April 2019, the *Green New Deal (Sustainable City Plan 2019)*, was released, consisting of a program of actions designed to create sustainability-based performance targets through 2050 designed to advance economic, environmental, and equity objectives.¹³ *L.A.’s Green New Deal* is the first four-year update to the City’s first Sustainable City *pLAn* that was released in 2015.¹⁴ It augments, expands, and elaborates L.A.’s vision for a sustainable future and tackles the climate emergency with accelerated targets and new aggressive goals. While not a plan adopted solely to reduce GHG emissions, within *L.A.’s Green New Deal*, “Climate Mitigation,” or reduction of GHG is one of eight explicit benefits that help define its strategies and goals. These include reducing GHG emissions through the following near-term outcomes:

¹¹City of Los Angeles, *GreenLA: An Action Plan to Lead the Nation in Fighting Global Warming*, 2007.

¹²City of Los Angeles Mayor’s Office, *Sustainable City pLAn*, April 2015, <http://plan.lamayor.org/wp-content/uploads/2017/03/the-plan.pdf>, accessed March 12, 2025.

¹³City of Los Angeles Mayor’s Office, *LA’s Green New Deal*, 2019.

¹⁴City of Los Angeles Mayor’s Office, *Sustainable City pLAn*, April 2015.

- Reduce potable water use per capita by 22.5 percent by 2025; 25 percent by 2035; and maintain or reduce 2035 per capita water use through 2050.
- Reduce building energy use per square feet for all building types 22 percent by 2025; 34 percent by 2035; and 44 percent by 2050 (from a baseline of 68 one million British thermal units /square feet in 2015).
- All new buildings will be net zero carbon by 2030 and 100 percent of buildings will be net zero carbon by 2050.
- Increase cumulative new housing unit construction to 150,000 by 2025; and 275,000 units by 2035.
- Ensure 57 percent of new housing units are built within 1,500 feet of transit by 2025; and 75 percent by 2035.
- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides or transit to at least 35 percent by 2025, 50 percent by 2035, and maintain at least 50 percent by 2050.
- Reduce VMT per capita by at least 13 percent by 2025; 39 percent by 2035; and 45 percent by 2050.
- Increase the percentage of electric and zero emission vehicles in the city to 25 percent by 2025; 80 percent by 2035; and 100 percent by 2050.
- Increase landfill diversion rate to 90 percent by 2025; 95 percent by 2035 and 100 percent by 2050.
- Reduce municipal solid waste generation per capita by at least 15 percent by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 pounds of waste generated per capita per day in 2011).
- Eliminate organic waste going to landfill by 2028.
- Reduce urban/rural temperature differential by at least 1.7 degrees by 2025; and 3 degrees by 2035.
- Ensure proportion of Angelenos living within ½-mile of a park or open space is at least 65 percent by 2025; 75 percent by 2035; and 100 percent by 2050.

Significance Thresholds

This Study was undertaken to determine whether construction or operation of the proposed project would have the potential to result in significant environmental impacts related to GHG emissions in the context of the Appendix G Environmental Checklist criteria of the CEQA Statute and Guidelines. Implementation of the proposed project may result in a significant environmental impact related to GHG emissions if it would:

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

Section 15064.4 of the CEQA Guidelines states that a lead agency should make a good-faith effort to describe, calculate, or estimate the amount of GHG emissions resulting from a project. The lead agency has the discretion to decide whether to quantify GHG emissions resulting from a project or rely on a qualitative analysis or performance-based standards. If a quantitative approach is chosen, the CEQA Guidelines promulgate that the lead agency should consider the following factors when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and,
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The CEQA Guidelines encourage lead agencies to develop and publish thresholds of significance that the agency uses to standardize the determination of the significance of potential environmental effects of proposed projects. When adopting or using particular thresholds, the amended Guidelines allows lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that use of the thresholds are supported by substantial evidence, and/or to develop their own significance threshold.

Neither the City of Los Angeles/LADWP nor the SCAQMD has officially adopted a quantitative threshold screening value for determining the significance of GHG emissions that will be generated by projects under CEQA. However, the SCAQMD published a *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* in October 2008, which contained several recommendations developed by SCAQMD staff for quantitatively assessing GHG emissions subject to CEQA.¹⁵ Over the course of two and a half years between 2008 and 2010, the SCAQMD convened a GHG CEQA Significance Threshold Stakeholder Working Group that met 15 times beginning in April of 2008 to examine alternatives for establishing quantitative GHG thresholds. Ultimately, the SCAQMD staff proposed a tiered approach to analyzing the potential significance of GHG emissions from CEQA projects that was developed through collaboration with the Stakeholder Working Group:

- **Tier 1** – Evaluate whether or not the project qualifies for any applicable exemption under CEQA.
- **Tier 2** – Determine whether the project is consistent with a GHG reduction plan (that may be part of a local general plan, for example). The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines Sections 15064(h)(3), 15125(d), or 15152(a). The GHG reduction plan must, at a minimum, comply with AB 32 GHG reduction goals; include emissions estimates agreed upon by either CARB or the SCAQMD, have been analyzed under CEQA, and have a certified Final CEQA document.
- **Tier 3** – Numerically attempt to identify small projects that would not likely contribute to significant cumulative GHG impacts. SCAQMD recommended a bifurcated screening level approach to address industrial projects and residential/commercial projects (which are largely indirect sources). SCAQMD staff officially adopted a 10,000 MTCO₂e/year threshold for industrial projects for which the district is the lead agency in December 2008.¹⁶ For non-industrial projects, the SCAQMD staff recommended either a singular bright line threshold of 3,000 MTCO₂e, or separate thresholds for residential projects (3,500 MTCO₂e), commercial projects (1,400 MTCO₂e), and mixed-use projects (3,000 MTCO₂e). The 3,000 MTCO₂e threshold was also considered for industrial park/warehouse projects. These values were derived based on capturing approximately 90 percent of GHG emissions within the SCAQMD jurisdiction above the threshold so that mitigation measures to reduce emissions could be identified and enforced.

¹⁵SCAQMD, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008.

¹⁶SCAQMD, *Minutes for the GHG CEQA Significance Working Group Meeting #15*, September 2010.

- **Tier 4** – Performance Standards such as percent emission reduction targets or sector-based standards.
- **Tier 5** – Pursue mitigation through CEQA Offsets (i.e., off-site GHG reduction credits).

The mitigation measures evaluated by SCAQMD staff were applicable to long-term, operational emissions from large stationary source facilities and land use developments. As the proposed project would generate GHG emissions predominantly during temporary construction activities and changes to long-term regional GHG emissions would be of relatively minimal magnitude, the GHG emissions analysis in this Study was prepared to address the most conservative threshold considered for industrial projects of 3,000 MTCO_{2e} per year.

Methodology

Estimates of GHG emissions that would be generated during construction and future operation of the proposed project were prepared using information developed by the LADWP design team. The primary sources of GHG emissions involved in construction activities would be off-road equipment, on-site trucks for fugitive dust control and concrete pouring, and on-road vehicle trips to and from the project site. Future operation of the proposed project would require electricity to power the pump station, which would generate indirect GHG emissions through the LADWP electricity generation and distribution process. Additionally, the proposed project would require a nominal amount of water use (approximately 1,000 gallons per year), and an on-site emergency generator would be tested several times per year to ensure its capabilities in the event of a power disruption.

CONSTRUCTION

Construction of Unit 1 of the proposed project is anticipated to commence in July 2028 and conclude in July 2036. Construction of Unit 2 of the proposed project would be anticipated to commence in September 2030 and conclude in March 2038. Construction methods would include open trench and pipe jacking installations. Both open trench pipe installations and pipe jacking installations would occur concurrently over approximately 120 months.

Estimates of GHG emissions that would be generated during construction of the proposed project were quantified using the California Emissions Estimator Model (CalEEMod, Version 2022.1.1.30). CalEEMod is the preferred industry tool for preparing GHG emissions analyses for CEQA projects, and its database contains off-road equipment emission factors from the CARB OFFROAD emissions inventory and the Emission FACtor (EMFAC2021) on-road mobile source emissions inventory database. LADWP's project team provided equipment and vehicle activity inventories for each method of construction, which can be found in the **Appendix**. The construction details were used to produce estimates of GHG emissions that would occur during construction of the proposed project. In accordance with SCAQMD guidance, the total amount of GHG emissions that would be generated during construction of the proposed project were summed and amortized over a 30-year operational lifetime.

OPERATIONS

The entire GTL would be located underground and would not be visible during operation. Operational activities would be limited to scheduled maintenance and emergency repair. Maintenance activities would be minimal and would be similar to those that occur under existing conditions. No additional permanent workers would be required to operate or maintain the GTL. Implementation of the proposed project would

not introduce a new substantial source of permanent GHG emissions to the project site or surrounding area. Therefore, GHG impacts associated with the future operations are addressed qualitatively.

Impact Assessment

a) Would the proposed project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? (Less-Than-Significant Impact)

The proposed project would generate GHG emissions exclusively from construction activities. Operation of the proposed project following the completion of construction would not introduce any new permanent sources of GHG emissions to the project area. CalEEMod was utilized to calculate reasonably conservative estimates of the total GHG emissions that would be generated by off-road equipment, on-site trucks, and vehicles traveling to and from the construction site, including light duty crew vehicles and heavy-duty haul trucks. **Table 3** presents the estimated GHG emissions that would be generated by construction of the proposed project over the 120-month schedule and displays average annual emissions. Construction activities for implementation of the proposed project would produce a total of approximately 4,647 MTCO₂e over the 10-year period, which equates to approximately 155 MTCO₂e based on a 30-year amortization schedule. The annual average emissions during proposed project construction would be approximately 465 MTCO₂e from 2028 to 2038. The magnitude of annual average emissions would remain well below the most conservative proposed SCAQMD interim screening threshold of 3,000 MTCO₂e annual emissions. Therefore, implementation of the proposed project would result in a less than significant impact related to mass GHG emissions.

TABLE 3: PROPOSED PROJECT GREENHOUSE GAS EMISSIONS	
Component/Source	Greenhouse Gas Emissions (MTCO₂e)
OPEN-TRENCH CONSTRUCTION	
Off-Road Equipment	1,082.6
On-Site Water Trucks	4.4
Debris & Soil Hauling Trucks	1,677.8
Materials & Slurry Delivery Trucks	622.7
Construction Crew Vehicles	450.2
Subtotal	3,837.7
PIPE JACKING CONSTRUCTION	
Off-Road Equipment	526.9
On-Site Trucks	0.7
Debris & Soil Hauling Trucks	77.2
Materials & Slurry Delivery Trucks	96.3
Construction Crew Vehicles	108.0
Subtotal	809.2
Total Cumulative Construction Emissions	4,646.9
Annual Average Rate (MTCO₂e/year)	464.7
Most Conservative Interim SCAQMD Threshold	3,000
SOURCE: TAHA, 2025.	

b) Would the proposed project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs? (Less-Than-Significant Impact)

Measures included in the CARB Scoping Plan update would indirectly address GHG emissions levels associated with construction activities associated with the proposed project, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a low-carbon fuel standard. Policies formulated under the mandate of AB 32 that apply to construction-related activity, either directly or indirectly, are assumed to be implemented statewide and would affect construction activities should those policies be implemented before construction begins. Therefore, construction of the proposed project would not conflict with the CARB Scoping Plan update.

The measures in the LA100 Plan do not directly relate to the purpose and objectives of the proposed project; and the proposed project would contribute to ensuring that the 2020 Urban Water Management Plan is implemented effectively. The purpose of the proposed project is to enhance LADWP's distribution system dependability into the future, and the proposed project would not conflict with or impede LADWP's initiatives to derive additional electricity from renewable resources in accordance with statewide regulations. The intent, purpose, and functions of the proposed project are consistent with the goals of the AB 32 Scoping Plan and the objectives of the LA100 Plan to protect against the detrimental effects of climate change and ensure a sustainable water supply infrastructure. The proposed project would not conflict with the CARB Scoping Plan update or any other plans, policies, or regulations for the purpose of reducing GHG emissions. As discussed earlier, the proposed project would also not generate GHG emissions that would have a significant impact on the environment. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions and would result in a less than significant impact.

References

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South Coast Air Quality Management District, *Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group Meeting #15*, September 28, 2010.

APPENDIX A

Greenhouse Gas Emissions Calculations

Granada Trunk Line (Open Trench) Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Granada Trunk Line (Open Trench)
Construction Start Date	7/3/2028
Lead Agency	LADWP
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	0.60
Location	34.2755301724864, -118.54776201979837
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3727
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.30

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	4.51	Mile	4.37	0.00	0.00	—	—	Area/length for total open trench.

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-9	Use Dust Suppressants

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.17	1.04	7.11	9.76	0.03	0.25	2.04	2.13	0.23	0.41	0.50	—	4,196	4,196	0.18	0.52	7.91	4,364
Mit.	1.17	1.04	7.11	9.76	0.03	0.25	2.04	2.13	0.23	0.41	0.50	—	4,196	4,196	0.18	0.52	7.91	4,364
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.08	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.8	42.8	< 0.005	< 0.005	0.03	44.1
Mit.	0.01	0.01	0.08	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.8	42.8	< 0.005	< 0.005	0.03	44.1
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.08	7.08	< 0.005	< 0.005	0.01	7.30
Mit.	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.08	7.08	< 0.005	< 0.005	0.01	7.30
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	75.0	100	550	150	—	—	150	—	55.0	—	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	No	—	—	—	—	—	—	—	Yes
Mit.	—	No	No	No	No	—	—	No	—	No	—	—	—	—	—	—	—	Yes
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	75.0	100	550	150	—	—	150	—	55.0	—	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	No	—	—	—	—	—	—	—	Yes
Mit.	—	No	No	No	No	—	—	No	—	No	—	—	—	—	—	—	—	Yes
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,000
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	No
Mit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.17	1.04	7.11	9.76	0.03	0.25	2.04	2.13	0.23	0.41	0.50	—	4,196	4,196	0.18	0.52	7.91	4,364
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2028	0.01	0.01	0.08	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.8	42.8	< 0.005	< 0.005	0.03	44.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.08	7.08	< 0.005	< 0.005	0.01	7.30

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.17	1.04	7.11	9.76	0.03	0.25	2.04	2.13	0.23	0.41	0.50	—	4,196	4,196	0.18	0.52	7.91	4,364
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.01	0.01	0.08	0.10	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	42.8	42.8	< 0.005	< 0.005	0.03	44.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.08	7.08	< 0.005	< 0.005	0.01	7.30

3. Construction Emissions Details

3.1. Demo/Site Prep (2028) - Unmitigated

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

Location	TOG	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 Equipm	0.36	0.30	2.57	3.87	0.01	0.07	—	0.07	0.07	—	0.07	—	546	546	0.02	< 0.005	—	548
Demolition	—	—	—	—	—	—	1.11	1.11	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.49	1.49	< 0.005	< 0.005	—	1.50
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25	0.25	< 0.005	< 0.005	—	0.25
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624

Hauling	0.09	0.02	1.53	0.61	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,304	1,304	0.07	0.21	2.64	1,370
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.57	3.57	< 0.005	< 0.005	< 0.005	3.75
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.59	0.59	< 0.005	< 0.005	< 0.005	0.62

3.2. Demo/Site Prep (2028) - Mitigated

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

Location	TOG	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	0.36	0.30	2.57	3.87	0.01	0.07	—	0.07	0.07	—	0.07	—	546	546	0.02	< 0.005	—	548
Demolition	—	—	—	—	—	—	1.11	1.11	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.49	1.49	< 0.005	< 0.005	—	1.50
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25	0.25	< 0.005	< 0.005	—	0.25
Demolition	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
Hauling	0.09	0.02	1.53	0.61	0.01	0.02	0.37	0.39	0.02	0.10	0.12	—	1,304	1,304	0.07	0.21	2.64	1,370
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.57	3.57	< 0.005	< 0.005	< 0.005	3.75

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.59	0.59	< 0.005	< 0.005	< 0.005	0.62

3.3. Excavation & Shoring (2028) - Unmitigated

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

Location	TOG	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	0.28	0.23	2.36	3.88	0.01	0.07	—	0.07	0.07	—	0.07	—	596	596	0.02	< 0.005	—	598
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.63	1.63	< 0.005	< 0.005	—	1.64
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Granada Trunk Line (Open Trench) Detailed Report, 9/9/2025

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
Hauling	0.18	0.04	3.06	1.22	0.02	0.04	0.74	0.78	0.04	0.20	0.24	—	2,607	2,607	0.13	0.42	5.27	2,740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.14	7.14	< 0.005	< 0.005	0.01	7.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	< 0.005	1.24

3.4. Excavation & Shoring (2028) - Mitigated

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

Location	TOG	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	0.28	0.23	2.36	3.88	0.01	0.07	—	0.07	0.07	—	0.07	—	596	596	0.02	< 0.005	—	598
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.63	1.63	< 0.005	< 0.005	—	1.64
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
Hauling	0.18	0.04	3.06	1.22	0.02	0.04	0.74	0.78	0.04	0.20	0.24	—	2,607	2,607	0.13	0.42	5.27	2,740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.14	7.14	< 0.005	< 0.005	0.01	7.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	< 0.005	1.24

3.5. Pipe Installation (2028) - Unmitigated

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

Location	TOG	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	0.92	0.77	6.69	7.92	0.02	0.25	—	0.25	0.23	—	0.23	—	1,965	1,965	0.08	0.02	—	1,972
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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.38	5.38	< 0.005	< 0.005	—	5.40
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.89	0.89	< 0.005	< 0.005	—	0.89
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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.02	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312

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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
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	0.00

3.6. Pipe Installation (2028) - Mitigated

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

Location	TOG	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	0.92	0.77	6.69	7.92	0.02	0.25	—	0.25	0.23	—	0.23	—	1,965	1,965	0.08	0.02	—	1,972
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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.38	5.38	< 0.005	< 0.005	—	5.40
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.89	0.89	< 0.005	< 0.005	—	0.89
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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.02	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
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	0.00

3.7. Work Site Restoration (2028) - Unmitigated

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

Location	TOG	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	0.55	0.46	3.86	5.58	0.01	0.12	—	0.12	0.11	—	0.11	—	801	801	0.03	0.01	—	804
Architectural Coatings	0.46	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.20	2.20	< 0.005	< 0.005	—	2.20
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36

Architect ural	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
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	0.00

3.8. Work Site Restoration (2028) - Mitigated

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

Location	TOG	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	0.55	0.46	3.86	5.58	0.01	0.12	—	0.12	0.11	—	0.11	—	801	801	0.03	0.01	—	804
Architectural Coatings	0.46	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.20	2.20	< 0.005	< 0.005	—	2.20
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
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	0.00

3.9. Backfill (2028) - Unmitigated

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

Location	TOG	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	0.28	0.23	2.36	3.88	0.01	0.07	—	0.07	0.07	—	0.07	—	596	596	0.02	< 0.005	—	598

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.63	1.63	< 0.005	< 0.005	—	1.64
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397

Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
Hauling	0.18	0.04	3.06	1.22	0.02	0.04	0.74	0.78	0.04	0.20	0.24	—	2,607	2,607	0.13	0.42	5.27	2,740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.14	7.14	< 0.005	< 0.005	0.01	7.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	< 0.005	1.24

3.10. Backfill (2028) - Mitigated

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

Location	TOG	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	0.28	0.23	2.36	3.88	0.01	0.07	—	0.07	0.07	—	0.07	—	596	596	0.02	< 0.005	—	598
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.63	1.63	< 0.005	< 0.005	—	1.64
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipm ent	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.27	0.27	< 0.005	< 0.005	—	0.27
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.04	0.01	0.63	0.30	< 0.005	< 0.005	0.17	0.18	< 0.005	0.05	0.05	—	597	597	0.02	0.08	1.51	624
Hauling	0.18	0.04	3.06	1.22	0.02	0.04	0.74	0.78	0.04	0.20	0.24	—	2,607	2,607	0.13	0.42	5.27	2,740
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.64	1.64	< 0.005	< 0.005	< 0.005	1.71
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.14	7.14	< 0.005	< 0.005	0.01	7.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.27	0.27	< 0.005	< 0.005	< 0.005	0.28
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.18	1.18	< 0.005	< 0.005	< 0.005	1.24

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demo/Site Prep	Linear, Grubbing & Land Clearing	7/3/2028	7/3/2028	5.00	1.00	—
Excavation & Shoring	Linear, Grading & Excavation	7/4/2028	7/4/2028	5.00	1.00	—
Pipe Installation	Linear, Drainage, Utilities, & Sub-Grade	7/5/2028	7/5/2028	5.00	1.00	—
Work Site Restoration	Linear, Paving	7/7/2028	7/7/2028	5.00	1.00	—
Backfill	Linear, Trenching	7/6/2028	7/6/2028	5.00	1.00	—

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
Demo/Site Prep	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
Demo/Site Prep	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Demo/Site Prep	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Demo/Site Prep	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Demo/Site Prep	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Excavation & Shoring	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
Excavation & Shoring	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Excavation & Shoring	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Excavation & Shoring	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Excavation & Shoring	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Pipe Installation	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Pipe Installation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Pipe Installation	Welders	Diesel	Average	1.00	6.00	46.0	0.45

Pipe Installation	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Pipe Installation	Cranes	Diesel	Average	2.00	6.00	367	0.29
Work Site Restoration	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Work Site Restoration	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Work Site Restoration	Sweepers/Scrubbers	Diesel	Average	1.00	4.00	36.0	0.46
Work Site Restoration	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Work Site Restoration	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Work Site Restoration	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Work Site Restoration	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Backfill	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
Backfill	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Backfill	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Backfill	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Backfill	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demo/Site Prep	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
Demo/Site Prep	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Demo/Site Prep	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Demo/Site Prep	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Demo/Site Prep	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Excavation & Shoring	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
Excavation & Shoring	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Excavation & Shoring	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Excavation & Shoring	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20

Excavation & Shoring	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Pipe Installation	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Pipe Installation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Pipe Installation	Welders	Diesel	Average	1.00	6.00	46.0	0.45
Pipe Installation	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Pipe Installation	Cranes	Diesel	Average	2.00	6.00	367	0.29
Work Site Restoration	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Work Site Restoration	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Work Site Restoration	Sweepers/Scrubbers	Diesel	Average	1.00	4.00	36.0	0.46
Work Site Restoration	Rollers	Diesel	Average	1.00	4.00	36.0	0.38
Work Site Restoration	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Work Site Restoration	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74
Work Site Restoration	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Backfill	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
Backfill	Tractors/Loaders/Back hoes	Diesel	Average	1.00	4.00	84.0	0.37
Backfill	Skid Steer Loaders	Diesel	Average	1.00	6.00	71.0	0.37
Backfill	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Backfill	Generator Sets	Diesel	Average	1.00	2.00	14.0	0.74

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo/Site Prep	—	—	—	—
Demo/Site Prep	Worker	30.0	18.5	LDA,LDT1,LDT2
Demo/Site Prep	Vendor	20.0	10.2	HHDT,MHDT
Demo/Site Prep	Hauling	20.0	20.0	HHDT

Demo/Site Prep	Onsite truck	1.00	1.00	HHDT
Excavation & Shoring	—	—	—	—
Excavation & Shoring	Worker	30.0	18.5	LDA,LDT1,LDT2
Excavation & Shoring	Vendor	20.0	10.2	HHDT,MHDT
Excavation & Shoring	Hauling	40.0	20.0	HHDT
Excavation & Shoring	Onsite truck	1.00	1.00	HHDT
Pipe Installation	—	—	—	—
Pipe Installation	Worker	30.0	18.5	LDA,LDT1,LDT2
Pipe Installation	Vendor	10.0	10.2	HHDT,MHDT
Pipe Installation	Hauling	0.00	20.0	HHDT
Pipe Installation	Onsite truck	0.00	0.00	HHDT
Work Site Restoration	—	—	—	—
Work Site Restoration	Worker	30.0	18.5	LDA,LDT1,LDT2
Work Site Restoration	Vendor	20.0	10.2	HHDT,MHDT
Work Site Restoration	Hauling	0.00	20.0	HHDT
Work Site Restoration	Onsite truck	1.00	1.00	HHDT
Backfill	—	—	—	—
Backfill	Worker	30.0	18.5	LDA,LDT1,LDT2
Backfill	Vendor	20.0	10.2	HHDT,MHDT
Backfill	Hauling	40.0	20.0	HHDT
Backfill	Onsite truck	1.00	1.00	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo/Site Prep	—	—	—	—
Demo/Site Prep	Worker	30.0	18.5	LDA,LDT1,LDT2
Demo/Site Prep	Vendor	20.0	10.2	HHDT,MHDT
Demo/Site Prep	Hauling	20.0	20.0	HHDT

Demo/Site Prep	Onsite truck	1.00	1.00	HHDT
Excavation & Shoring	—	—	—	—
Excavation & Shoring	Worker	30.0	18.5	LDA,LDT1,LDT2
Excavation & Shoring	Vendor	20.0	10.2	HHDT,MHDT
Excavation & Shoring	Hauling	40.0	20.0	HHDT
Excavation & Shoring	Onsite truck	1.00	1.00	HHDT
Pipe Installation	—	—	—	—
Pipe Installation	Worker	30.0	18.5	LDA,LDT1,LDT2
Pipe Installation	Vendor	10.0	10.2	HHDT,MHDT
Pipe Installation	Hauling	0.00	20.0	HHDT
Pipe Installation	Onsite truck	0.00	0.00	HHDT
Work Site Restoration	—	—	—	—
Work Site Restoration	Worker	30.0	18.5	LDA,LDT1,LDT2
Work Site Restoration	Vendor	20.0	10.2	HHDT,MHDT
Work Site Restoration	Hauling	0.00	20.0	HHDT
Work Site Restoration	Onsite truck	1.00	1.00	HHDT
Backfill	—	—	—	—
Backfill	Worker	30.0	18.5	LDA,LDT1,LDT2
Backfill	Vendor	20.0	10.2	HHDT,MHDT
Backfill	Hauling	40.0	20.0	HHDT
Backfill	Onsite truck	1.00	1.00	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)
Work Site Restoration	0.00	0.00	0.00	0.00	100

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 (Ton of Debris)	Acres Paved (acres)
Demo/Site Prep	0.00	0.00	0.00	80.0	—
Excavation & Shoring	0.00	120	0.00	0.00	—
Backfill	120	0.00	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	0.10	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.4	annual days of extreme heat
Extreme Precipitation	6.85	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

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

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	5	2	2	4

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	2	2	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	2	2	2
Wildfire	1	2	2	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	5	2	2	4

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	93.6
AQ-PM	54.1
AQ-DPM	58.0
Drinking Water	83.1
Lead Risk Housing	22.1
Pesticides	0.00
Toxic Releases	23.3
Traffic	84.6
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	45.7
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	23.4
Cardio-vascular	69.6
Low Birth Weights	17.2
Socioeconomic Factor Indicators	—
Education	32.9
Housing	39.7
Linguistic	71.7
Poverty	38.6
Unemployment	63.4

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	74.8235596
Employed	71.06377518
Median HI	80.27717182
Education	—
Bachelor's or higher	87.56576415
High school enrollment	100
Preschool enrollment	79.96920313
Transportation	—
Auto Access	90.86359553
Active commuting	12.947517
Social	—
2-parent households	56.30694213
Voting	55.87065315
Neighborhood	—
Alcohol availability	61.54240985
Park access	81.35506224
Retail density	48.50506865
Supermarket access	51.79006801
Tree canopy	65.76414731
Housing	—
Homeownership	79.76389067
Housing habitability	90.46580264
Low-inc homeowner severe housing cost burden	23.64942897
Low-inc renter severe housing cost burden	95.34197357
Uncrowded housing	96.93314513
Health Outcomes	—

Insured adults	68.56152958
Arthritis	26.6
Asthma ER Admissions	77.7
High Blood Pressure	21.8
Cancer (excluding skin)	10.4
Asthma	94.4
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	65.3
Diagnosed Diabetes	52.6
Life Expectancy at Birth	86.0
Cognitively Disabled	82.5
Physically Disabled	71.5
Heart Attack ER Admissions	55.9
Mental Health Not Good	91.8
Chronic Kidney Disease	64.9
Obesity	88.9
Pedestrian Injuries	19.6
Physical Health Not Good	74.9
Stroke	51.7
Health Risk Behaviors	—
Binge Drinking	85.2
Current Smoker	89.7
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	24.6
SLR Inundation Area	0.0
Children	90.2
Elderly	23.2

English Speaking	41.6
Foreign-born	81.3
Outdoor Workers	90.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	84.4
Traffic Density	90.2
Traffic Access	23.0
Other Indices	—
Hardship	13.1
Other Decision Support	—
2016 Voting	37.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Updated construction phases to match project details.
Construction: Off-Road Equipment	Adjusted equipment list to project needs, informed by data provided by LADWP.
Construction: Trips and VMT	Adjusted construction trips to match project needs (up to 15 workers/crew max, 20 vendor one-way trips/day, 20 haul truck round trips/day).
Construction: Dust From Material Movement	Construction would not involve equipment for grading (i.e., bulldozers, graders, scrapers).
Construction: Demolition	Conservative assumption of 250 ft length x 8 ft width x 1 ft depth (2,000 cu. ft x 1.5 expansion factor = ~115 CY x 0.7 tons/CY = ~80 tons) of demolished material per day.
Construction: On-Road Fugitive Dust	Unpaved areas would only be related to the trench. On-site water truck would travel on paved roadway surfaces.
Construction: Architectural Coatings	Re-striping of roadways.
Construction: Paving	Assume up to 500 LF of paving over 8-foot width on a single day = ~0.1 acres.

Granada Trunk Line (Jack & Bore) Detailed 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	Granada Trunk Line (Jack & Bore)
Construction Start Date	7/3/2028
Lead Agency	LADWP
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	0.60
Location	34.2755301724864, -118.54776201979837
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	3727
EDFZ	17
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.30

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	0.50	Mile	0.10	0.00	0.00	—	—	Length/area for total jack-bore work.

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-9	Use Dust Suppressants

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

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.	1.36	11.5	17.7	0.03	0.38	1.48	1.63	0.35	0.27	0.56	—	3,724	3,724	0.15	0.18	3.20	3,785
Mit.	1.36	11.5	17.7	0.03	0.38	1.16	1.32	0.35	0.24	0.52	—	3,724	3,724	0.15	0.18	3.20	3,785
% Reduced	—	—	—	—	—	21%	19%	—	11%	6%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.12	0.18	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	41.0	41.0	< 0.005	< 0.005	0.02	41.7
Mit.	0.01	0.12	0.18	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	41.0	41.0	< 0.005	< 0.005	0.02	41.7
% Reduced	—	—	—	—	—	25%	20%	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.79	6.79	< 0.005	< 0.005	< 0.005	6.90
Mit.	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.79	6.79	< 0.005	< 0.005	< 0.005	6.90
% Reduced	—	—	—	—	—	25%	20%	—	13%	6%	—	—	—	—	—	—	—

Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	—	—	150	—	—	55.0	—	—	—	—	—	—	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Mit.	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	—	—	—	—	—	—	—
Mit.	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,000
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	No
Mit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.36	11.5	17.7	0.03	0.38	1.48	1.63	0.35	0.27	0.56	—	3,724	3,724	0.15	0.18	3.20	3,785
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2028	0.01	0.12	0.18	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	41.0	41.0	< 0.005	< 0.005	0.02	41.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.79	6.79	< 0.005	< 0.005	< 0.005	6.90

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.36	11.5	17.7	0.03	0.38	1.16	1.32	0.35	0.24	0.52	—	3,724	3,724	0.15	0.18	3.20	3,785
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.01	0.12	0.18	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.01	—	41.0	41.0	< 0.005	< 0.005	0.02	41.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	< 0.005	0.02	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.79	6.79	< 0.005	< 0.005	< 0.005	6.90

3. Construction Emissions Details

3.1. Demo/Site Prep (2028) - 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	0.63	4.94	8.51	0.01	0.14	—	0.14	0.13	—	0.13	—	1,218	1,218	0.05	0.01	—	1,222

Demoliti	—	—	—	—	—	0.44	0.44	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.34	3.34	< 0.005	< 0.005	—	3.35
Demoliti on	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55
Demoliti on	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.77	0.30	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	652	652	0.03	0.10	1.32	685
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31

3.2. Demo/Site Prep (2028) - Mitigated

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	0.63	4.94	8.51	0.01	0.14	—	0.14	0.13	—	0.13	—	1,218	1,218	0.05	0.01	—	1,222
Demolition	—	—	—	—	—	0.44	0.44	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.34	3.34	< 0.005	< 0.005	—	3.35
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.77	0.30	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	652	652	0.03	0.10	1.32	685
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31

3.3. Excavation & Shoring (2028) - 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	1.24	10.2	15.6	0.02	0.37	—	0.37	0.34	—	0.34	—	2,326	2,326	0.09	0.02	—	2,334
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.37	6.37	< 0.005	< 0.005	—	6.39
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.06	1.06	< 0.005	< 0.005	—	1.06
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.77	0.30	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	652	652	0.03	0.10	1.32	685
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31

3.4. Excavation & Shoring (2028) - Mitigated

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	1.24	10.2	15.6	0.02	0.37	—	0.37	0.34	—	0.34	—	2,326	2,326	0.09	0.02	—	2,334
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.37	6.37	< 0.005	< 0.005	—	6.39
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.06	1.06	< 0.005	< 0.005	—	1.06
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.77	0.30	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	652	652	0.03	0.10	1.32	685
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31

3.5. Pipe Installation (2028) - 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	1.10	11.2	13.2	0.02	0.25	—	0.25	0.23	—	0.23	—	2,011	2,011	0.08	0.02	—	2,018
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	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.51	5.51	< 0.005	< 0.005	—	5.53
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	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.91	0.91	< 0.005	< 0.005	—	0.92
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	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	239	239	0.01	0.03	0.60	250
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.68
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

3.6. Pipe Installation (2028) - Mitigated

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	1.10	11.2	13.2	0.02	0.25	—	0.25	0.23	—	0.23	—	2,011	2,011	0.08	0.02	—	2,018
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	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.51	5.51	< 0.005	< 0.005	—	5.53
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	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.91	0.91	< 0.005	< 0.005	—	0.92
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	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.25	0.12	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	239	239	0.01	0.03	0.60	250
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	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.68
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	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.11	0.11	< 0.005	< 0.005	< 0.005	0.11
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

3.7. Work Site Restoration (2028) - 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	0.55	4.79	7.54	0.01	0.14	—	0.14	0.13	—	0.13	—	1,095	1,095	0.04	0.01	—	1,099
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.00	3.00	< 0.005	< 0.005	—	3.01
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.50
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.61	0.24	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	521	521	0.03	0.08	1.05	548

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.24	0.24	< 0.005	< 0.005	< 0.005	0.25

3.8. Work Site Restoration (2028) - Mitigated

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	0.55	4.79	7.54	0.01	0.14	—	0.14	0.13	—	0.13	—	1,095	1,095	0.04	0.01	—	1,099
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.00	3.00	< 0.005	< 0.005	—	3.01

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.50	0.50	< 0.005	< 0.005	—	0.50
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.61	0.24	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	521	521	0.03	0.08	1.05	548
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.24	0.24	< 0.005	< 0.005	< 0.005	0.25

3.9. Backfill (2028) - 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	1.02	8.32	12.4	0.02	0.28	—	0.28	0.26	—	0.26	—	2,253	2,253	0.09	0.02	—	2,261
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.17	6.17	< 0.005	< 0.005	—	6.19
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.02	1.02	< 0.005	< 0.005	—	1.03
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.77	0.30	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	652	652	0.03	0.10	1.32	685
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31

3.10. Backfill (2028) - Mitigated

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	1.02	8.32	12.4	0.02	0.28	—	0.28	0.26	—	0.26	—	2,253	2,253	0.09	0.02	—	2,261
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	4.80	4.80	< 0.005	< 0.005	0.01	5.06

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.17	6.17	< 0.005	< 0.005	—	6.19
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.02	1.02	< 0.005	< 0.005	—	1.03
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.69	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	392	392	< 0.005	0.01	1.12	397
Vendor	0.01	0.31	0.15	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	299	299	0.01	0.04	0.76	312
Hauling	0.01	0.77	0.30	< 0.005	0.01	0.19	0.19	0.01	0.05	0.06	—	652	652	0.03	0.10	1.32	685
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.03	1.03	< 0.005	< 0.005	< 0.005	1.05

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.82	0.82	< 0.005	< 0.005	< 0.005	0.85
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.79	1.79	< 0.005	< 0.005	< 0.005	1.87
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.17	0.17	< 0.005	< 0.005	< 0.005	0.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.14
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.30	0.30	< 0.005	< 0.005	< 0.005	0.31

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
-------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demo/Site Prep	Linear, Grubbing & Land Clearing	7/3/2028	7/3/2028	5.00	1.00	Demolish & remove road surface.

Excavation & Shoring	Linear, Grading & Excavation	7/4/2028	7/4/2028	5.00	1.00	Excavate jacking pits.
Pipe Installation	Linear, Drainage, Utilities, & Sub-Grade	7/5/2028	7/5/2028	5.00	1.00	Pipe-Jacking.
Work Site Restoration	Linear, Paving	7/7/2028	7/7/2028	5.00	1.00	Resurface road.
Backfill	Linear, Trenching	7/6/2028	7/6/2028	5.00	1.00	Backfill jacking pits.

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
Demo/Site Prep	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demo/Site Prep	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Demo/Site Prep	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Demo/Site Prep	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Demo/Site Prep	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Excavation & Shoring	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Excavation & Shoring	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Excavation & Shoring	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Excavation & Shoring	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Excavation & Shoring	Cranes	Diesel	Average	2.00	6.00	150	0.29
Excavation & Shoring	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Excavation & Shoring	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Excavation & Shoring	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Pipe Installation	Generator Sets	Diesel	Average	1.00	8.00	200	0.74
Pipe Installation	Pumps	Electric	Average	1.00	8.00	28.0	0.74
Pipe Installation	Bore/Drill Rigs	Electric	Average	1.00	8.00	83.0	0.50
Pipe Installation	Pressure Washers	Diesel	Average	1.00	3.00	14.0	0.30

Pipe Installation	Cranes	Diesel	Average	1.00	6.00	150	0.29
Pipe Installation	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Work Site Restoration	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Work Site Restoration	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Work Site Restoration	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Work Site Restoration	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Work Site Restoration	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Work Site Restoration	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Backfill	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Backfill	Cranes	Diesel	Average	1.00	6.00	367	0.29
Backfill	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Backfill	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Backfill	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Backfill	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Backfill	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demo/Site Prep	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demo/Site Prep	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Demo/Site Prep	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Demo/Site Prep	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Demo/Site Prep	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Excavation & Shoring	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Excavation & Shoring	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36

Excavation & Shoring	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Excavation & Shoring	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Excavation & Shoring	Cranes	Diesel	Average	2.00	6.00	150	0.29
Excavation & Shoring	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Excavation & Shoring	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Excavation & Shoring	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Pipe Installation	Generator Sets	Diesel	Average	1.00	8.00	200	0.74
Pipe Installation	Pumps	Electric	Average	1.00	8.00	28.0	0.74
Pipe Installation	Bore/Drill Rigs	Electric	Average	1.00	8.00	83.0	0.50
Pipe Installation	Pressure Washers	Diesel	Average	1.00	3.00	14.0	0.30
Pipe Installation	Cranes	Diesel	Average	1.00	6.00	150	0.29
Pipe Installation	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Work Site Restoration	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Work Site Restoration	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Work Site Restoration	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Work Site Restoration	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Work Site Restoration	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Work Site Restoration	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Backfill	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Backfill	Cranes	Diesel	Average	1.00	6.00	367	0.29
Backfill	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Backfill	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Backfill	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Backfill	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Backfill	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo/Site Prep	—	—	—	—
Demo/Site Prep	Worker	30.0	18.5	LDA,LDT1,LDT2
Demo/Site Prep	Vendor	10.0	10.2	HHDT,MHDT
Demo/Site Prep	Hauling	10.0	20.0	HHDT
Demo/Site Prep	Onsite truck	1.00	1.00	HHDT
Excavation & Shoring	—	—	—	—
Excavation & Shoring	Worker	30.0	18.5	LDA,LDT1,LDT2
Excavation & Shoring	Vendor	10.0	10.2	HHDT,MHDT
Excavation & Shoring	Hauling	10.0	20.0	HHDT
Excavation & Shoring	Onsite truck	1.00	1.00	HHDT
Pipe Installation	—	—	—	—
Pipe Installation	Worker	30.0	18.5	LDA,LDT1,LDT2
Pipe Installation	Vendor	8.00	10.2	HHDT,MHDT
Pipe Installation	Hauling	0.00	20.0	HHDT
Pipe Installation	Onsite truck	0.00	0.00	HHDT
Work Site Restoration	—	—	—	—
Work Site Restoration	Worker	30.0	18.5	LDA,LDT1,LDT2
Work Site Restoration	Vendor	10.0	10.2	HHDT,MHDT
Work Site Restoration	Hauling	8.00	20.0	HHDT
Work Site Restoration	Onsite truck	1.00	1.00	HHDT
Backfill	—	—	—	—
Backfill	Worker	30.0	18.5	LDA,LDT1,LDT2
Backfill	Vendor	10.0	10.2	HHDT,MHDT
Backfill	Hauling	10.0	20.0	HHDT

Backfill	Onsite truck	1.00	1.00	HHDT
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5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demo/Site Prep	—	—	—	—
Demo/Site Prep	Worker	30.0	18.5	LDA,LDT1,LDT2
Demo/Site Prep	Vendor	10.0	10.2	HHDT,MHDT
Demo/Site Prep	Hauling	10.0	20.0	HHDT
Demo/Site Prep	Onsite truck	1.00	1.00	HHDT
Excavation & Shoring	—	—	—	—
Excavation & Shoring	Worker	30.0	18.5	LDA,LDT1,LDT2
Excavation & Shoring	Vendor	10.0	10.2	HHDT,MHDT
Excavation & Shoring	Hauling	10.0	20.0	HHDT
Excavation & Shoring	Onsite truck	1.00	1.00	HHDT
Pipe Installation	—	—	—	—
Pipe Installation	Worker	30.0	18.5	LDA,LDT1,LDT2
Pipe Installation	Vendor	8.00	10.2	HHDT,MHDT
Pipe Installation	Hauling	0.00	20.0	HHDT
Pipe Installation	Onsite truck	0.00	0.00	HHDT
Work Site Restoration	—	—	—	—
Work Site Restoration	Worker	30.0	18.5	LDA,LDT1,LDT2
Work Site Restoration	Vendor	10.0	10.2	HHDT,MHDT
Work Site Restoration	Hauling	8.00	20.0	HHDT
Work Site Restoration	Onsite truck	1.00	1.00	HHDT
Backfill	—	—	—	—
Backfill	Worker	30.0	18.5	LDA,LDT1,LDT2
Backfill	Vendor	10.0	10.2	HHDT,MHDT
Backfill	Hauling	10.0	20.0	HHDT

Backfill	Onsite truck	1.00	1.00	HHDT
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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)
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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 (Ton of Debris)	Acres Paved (acres)
Demo/Site Prep	0.00	0.00	0.00	32.0	—
Excavation & Shoring	0.00	40.0	0.00	0.00	—
Backfill	40.0	0.00	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Road Widening	0.05	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	371	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	17.4	annual days of extreme heat
Extreme Precipitation	6.85	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	10.0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	2	2	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	2	2	2
Wildfire	1	2	2	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	5	2	2	4

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	2	2	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	2	2	2
Wildfire	1	2	2	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	5	2	2	4

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

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	93.6
AQ-PM	54.1
AQ-DPM	58.0
Drinking Water	83.1
Lead Risk Housing	22.1
Pesticides	0.00
Toxic Releases	23.3
Traffic	84.6
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	45.7
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	23.4
Cardio-vascular	69.6
Low Birth Weights	17.2
Socioeconomic Factor Indicators	—

Education	32.9
Housing	39.7
Linguistic	71.7
Poverty	38.6
Unemployment	63.4

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	74.8235596
Employed	71.06377518
Median HI	80.27717182
Education	—
Bachelor's or higher	87.56576415
High school enrollment	100
Preschool enrollment	79.96920313
Transportation	—
Auto Access	90.86359553
Active commuting	12.947517
Social	—
2-parent households	56.30694213
Voting	55.87065315
Neighborhood	—
Alcohol availability	61.54240985
Park access	81.35506224
Retail density	48.50506865
Supermarket access	51.79006801

Tree canopy	65.76414731
Housing	—
Homeownership	79.76389067
Housing habitability	90.46580264
Low-inc homeowner severe housing cost burden	23.64942897
Low-inc renter severe housing cost burden	95.34197357
Uncrowded housing	96.93314513
Health Outcomes	—
Insured adults	68.56152958
Arthritis	26.6
Asthma ER Admissions	77.7
High Blood Pressure	21.8
Cancer (excluding skin)	10.4
Asthma	94.4
Coronary Heart Disease	31.2
Chronic Obstructive Pulmonary Disease	65.3
Diagnosed Diabetes	52.6
Life Expectancy at Birth	86.0
Cognitively Disabled	82.5
Physically Disabled	71.5
Heart Attack ER Admissions	55.9
Mental Health Not Good	91.8
Chronic Kidney Disease	64.9
Obesity	88.9
Pedestrian Injuries	19.6
Physical Health Not Good	74.9
Stroke	51.7
Health Risk Behaviors	—

Binge Drinking	85.2
Current Smoker	89.7
No Leisure Time for Physical Activity	76.1
Climate Change Exposures	—
Wildfire Risk	24.6
SLR Inundation Area	0.0
Children	90.2
Elderly	23.2
English Speaking	41.6
Foreign-born	81.3
Outdoor Workers	90.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	84.4
Traffic Density	90.2
Traffic Access	23.0
Other Indices	—
Hardship	13.1
Other Decision Support	—
2016 Voting	37.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Adjusted construction phases to match PD.
Construction: Off-Road Equipment	Equipment lists informed by LADWP. For pipe installation, TBM = ~200 HP (modeled as generator for power source).
Construction: Trips and VMT	Updated construction trips to match project needs (up to 15 workers/crew max, 20 one-way vendor trips/day, 35 cy export/day)
Construction: Architectural Coatings	Added architectural coated area
Construction: Dust From Material Movement	Estimates provided by LADWP.
Construction: Demolition	At each launch site: 50 ft length x 16 ft width x 1 ft depth asphalt/concrete = 800 scf x 1.5 expansion factor = 1,200 scf / 27 = 45 CY x 0.7 tons/CY = ~32 tons/day.
Construction: Paving	Assume maximum of two pits resurfaced per day.

Open Trench Construction GHG Emissions **(Daily Emissions from CalEEMod Report)**

Open Trench

Phase Name	Work Days per Phase
Demo/Site Prep	300
Excavation & Shoring	800
Pipe Installation	600
Backfill	400
Work Site Restoration	400

3.1. Demo/Site Prep (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	546	0.02	0.005		548	74.6
Demolition						
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.7
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	54.0
Vendor	597	0.02	0.08	1.51	624	84.9
Hauling	1304	0.07	0.21	2.64	1370	186.4

3.3. Excavation & Shoring (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	596	0.02	0.005		598	217.0
Dust From Material Movement						
Onsite truck	4.8	0.005	0.005	0.01	5.06	1.8
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	144.1
Vendor	597	0.02	0.08	1.51	624	226.4
Hauling	2607	0.13	0.42	5.27	2740	994.3

3.5. Pipe Installation (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	1965	0.08	0.02		1972	536.7
Onsite truck	0	0	0	0	0	
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	108.0
Vendor	299	0.01	0.04	0.76	312	84.9
Hauling	0	0	0	0	0	0.0

Open Trench Construction GHG Emissions
(Daily Emissions from CalEEMod Report)

3.9. Backfill (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	596	0.02	0.005		598	108.5
Dust From Material Movement						
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.9
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	72.0
Vendor	597	0.02	0.08	1.51	624	113.2
Hauling	2607	0.13	0.42	5.27	2740	497.1

3.7. Work Site Restoration (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	801	0.03	0.01		804	145.9
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.9
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	72.0
Vendor	597	0.02	0.08	1.51	624	113.2
Hauling	0	0	0	0	0	0.0
						MTCO₂e
				Off-Road Equipment		1,082.6
				Onsite truck		4.4
				Worker		450.2
				Vendor		622.7
				Hauling		1,677.8
Grand Total (MTCO ₂ e)	4,646.9				Total	3,837.7
Annual Average (10 years)	464.7					

Pipe-Jack Construction GHG Emissions
(Daily Emissions from CalEEMod Report)

Pipe Jack

Phase Name	Work Days per Phase
Demo/Site Prep	50
Excavation & Shoring	150
Pipe Installation	275
Backfill	50
Work Site Restoration	75

3.1. Demo/Site Prep (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	1218	0.05	0.01		1222	27.7
Demolition						
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.1
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	9.0
Vendor	299	0.01	0.04	0.76	312	7.1
Hauling	652	0.03	0.1	1.32	685	15.5

3.3. Excavation & Shoring (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	2326	0.09	0.02		2334	158.8
Dust From Material Movement						
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.3
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	27.0
Vendor	299	0.01	0.04	0.76	312	21.2
Hauling	652	0.03	0.1	1.32	685	46.6

3.5. Pipe Installation (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	2011	0.08	0.02		2018	251.7
Onsite truck	0	0	0	0	0	
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	49.5
Vendor	239	0.01	0.03	0.6	250	31.2
Hauling	0	0	0	0	0	

Pipe-Jack Construction GHG Emissions
(Daily Emissions from CalEEMod Report)

3.9. Backfill (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	2253	0.09	0.02		2261	51.3
Dust From Material Movement						
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.1
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	9.0
Vendor	299	0.01	0.04	0.76	312	7.1
Hauling	652	0.03	0.1	1.32	685	15.5

3.7. Work Site Restoration (2028) - Unmitigated

Location	CO ₂ T	CH ₄	N ₂ O	R	CO ₂ e	Total MTCO ₂ e
Onsite						
Daily, Summer (Max)						
Off-Road Equipment	1095	0.04	0.01		1099	37.4
Onsite truck	4.8	0.005	0.005	0.01	5.06	0.2
Offsite						
Daily, Summer (Max)						
Worker	392	0.005	0.01	1.12	397	13.5
Vendor	299	0.01	0.04	0.76	312	10.6
Hauling	521	0.03	0.08	1.05	548	18.6
				Off-Road Equipment		526.9
				Onsite truck		0.7
				Worker		108.0
				Vendor		77.2
				Hauling		96.3
				Total		809.2