
APPENDIX D

Energy 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 – Energy Study**

Introduction

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

- Introduction
- Project Description
- Energy 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.

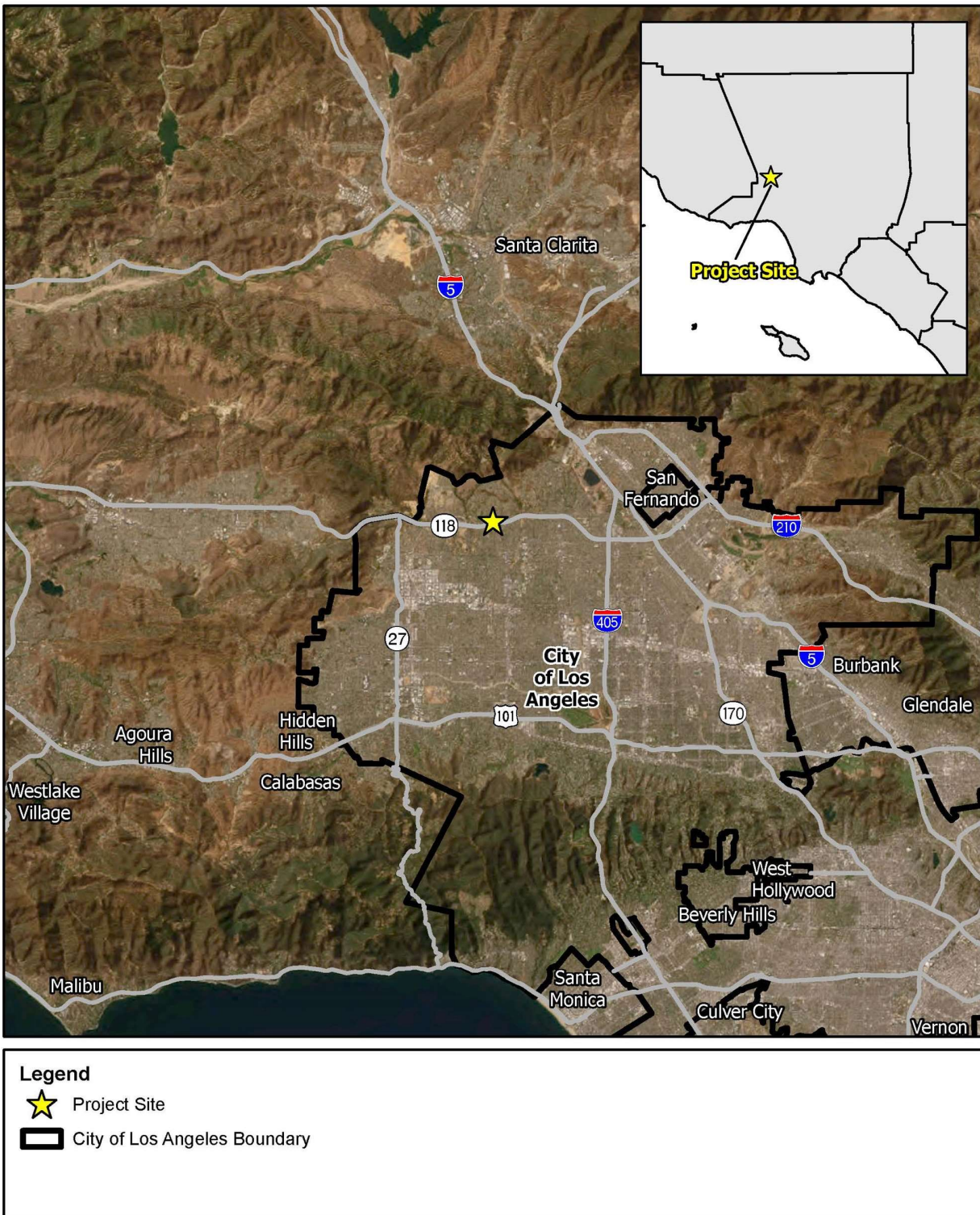
CONSTRUCTION

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.

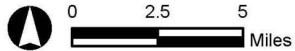
OPERATIONS

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

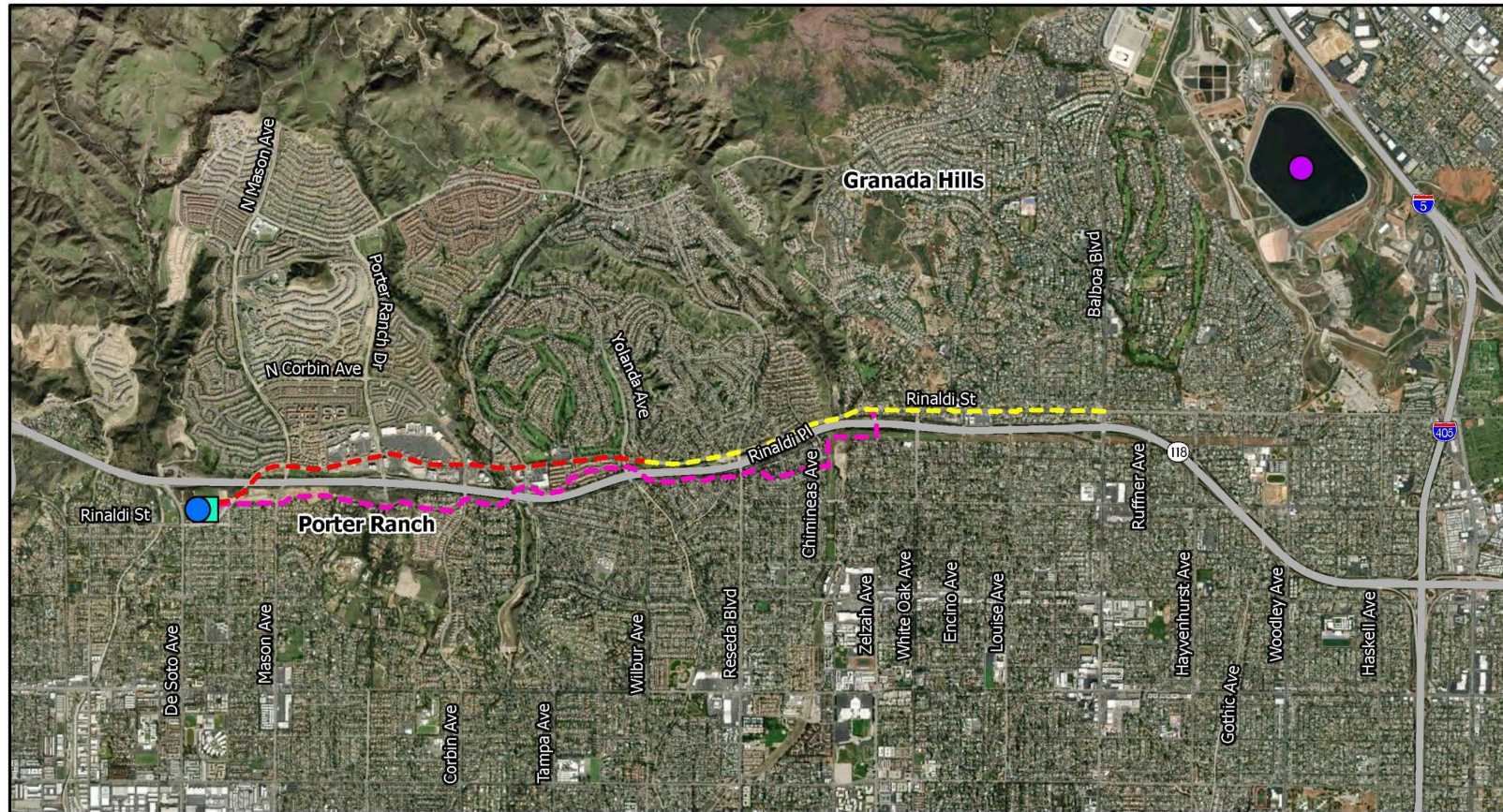
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Source: Esri, ArcGIS Online, County of Los Angeles

Regional Vicinity Map

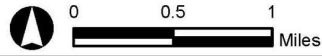
Figure 1



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

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Source: Esri, ArcGIS Online, County of Los Angeles

GRANADA TRUNK LINE REPLACEMENT PROJECT

Project Location Map

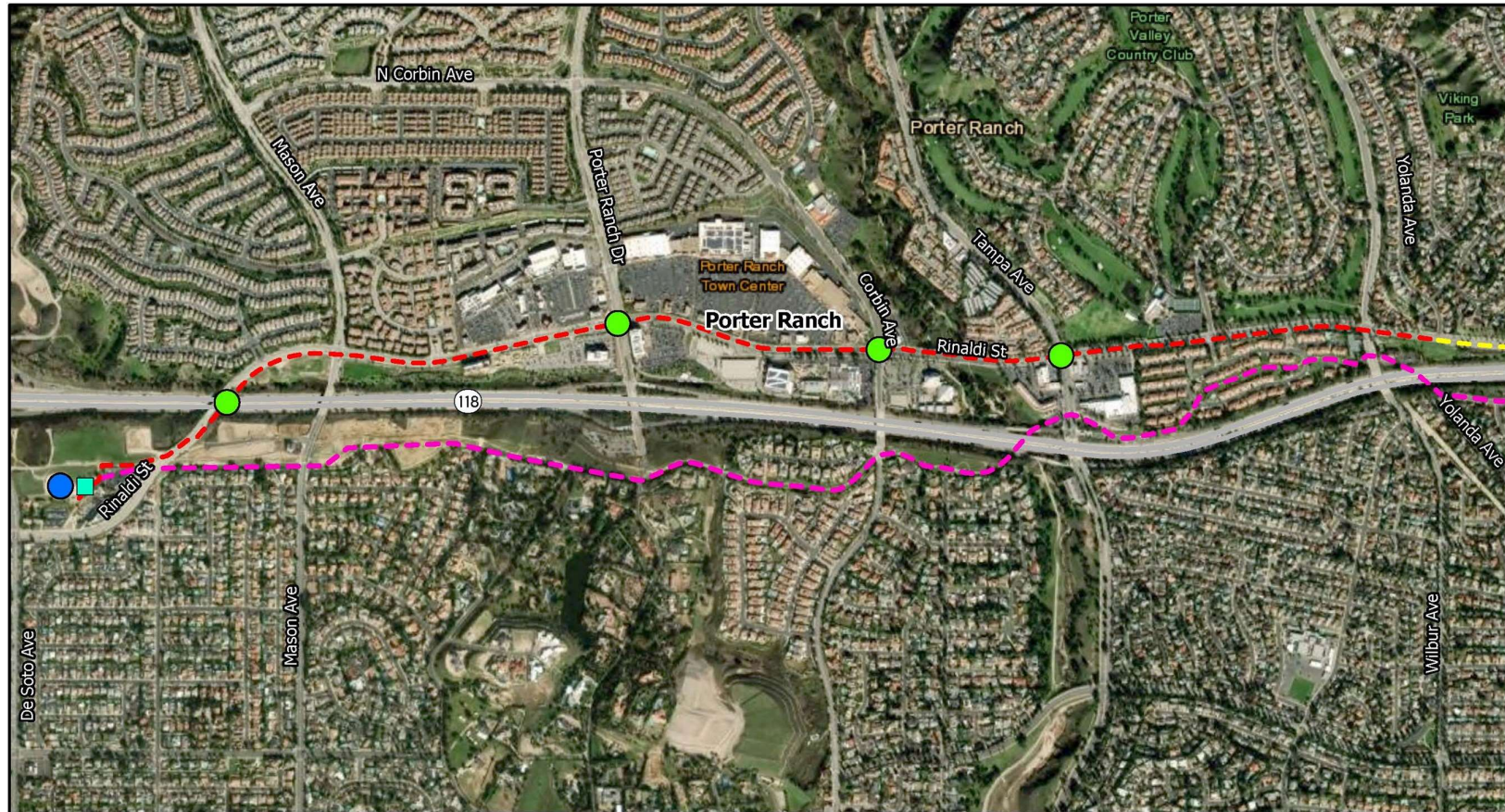
Figure 2



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



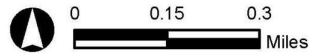


Legend

- 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

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Source: Esri, ArcGIS Online, County of Los Angeles

GRANADA TRUNK LINE REPLACEMENT PROJECT

Proposed Project Alignment - Unit 2

Figure 4

Energy Topical Information

The analysis of direct and indirect energy resource consumption associated with implementation of the proposed project considers potential petroleum-based transportation fuels consumption, electricity use, and natural gas use during construction and future operations.

TRANSPORTATION FUELS

The spark-ignited internal combustion engines of on-road motor vehicles and off-road equipment use fossil fuel petroleum energy for propulsion. Motor gasoline and diesel fuel are formulations of fossil fuels refined for use in various applications. Gasoline is the primary fuel source for most passenger automobiles, and diesel fuel is the primary fuel source for most off-road equipment and medium and heavy-duty trucks. As of 2023, approximately 11.7 billion gallons of gasoline and 2.0 billion gallons of diesel, including off-road diesel were sold and consumed throughout California.¹ More transportation fuels are consumed in Los Angeles County than any other county in California. The California Energy Commission estimates that approximately 3.04 billion gallons of gasoline and 290 million gallons of diesel fuel were purchased and consumed by Los Angeles County customers in 2023.²

ELECTRICITY SUPPLY

Electricity is a form of energy produced through various means of expending natural resources (i.e., coal-fire power plants, solar energy facilities, hydroelectric dams, and geothermal plants) and is used to power buildings, lighting, appliances, and myriad other end uses. Electricity in the project area is provided by the LADWP. The LADWP's power system supplies more than 21,600 gigawatt-hours (GWh) of electricity a year for the City of Los Angeles' 1.6 million residential and business customers as well as about 6,000 customers in Owens Valley. The average electricity consumption per service connection is approximately 449 kilowatt-hours (kWh) per month. Business and industry consume approximately 60 percent of the electricity in Los Angeles. The LADWP has a generation capacity of approximately 8,007 MW from a mix of energy sources. Approximately 36 percent of electricity is generated from renewable energy, 34 percent from natural gas, 13 percent from nuclear, four percent from hydroelectric, and 13 percent from coal.³

NATURAL GAS

Natural gas is provided and distributed to residents and businesses in the City of Los Angeles by the Southern California Gas Company (SoCalGas). According to the 2018 California Gas Report, SoCalGas is expected to provide an average of 2,519,000,000 thousand british thermal unit (BTU) per day by 2022. SoCalGas projects total gas demand to decline at an annual rate of 0.74 percent from 2018 to 2035. The decline in throughput demand is due to modest economic growth, California Public Utilities Commission mandates energy efficiency standards and programs, tighter standards created by revised Title 24 Codes and Standards, renewable electricity goals, the decline in commercial and industrial demand, and conservation savings linked to Advanced Metering Infrastructure.⁴

Existing Setting

¹California Energy Commission, *Energy Almanac*, <https://www.energy.ca.gov/data-reports/energy-almanac>, accessed August 27, 2025.

²California Energy Commission, *2010-2023 CEC-A15 Results and Analysis*, 2024.

³LADWP, *2023-24 Briefing Book*, 2024.

⁴California Gas and Electric Utilities, *2025 California Gas Report*, 2025.

California contains abundant sources of nonrenewable and renewable energy. Nonrenewable resources include large crude oil and natural gas deposits that are located within six geological basins in the Central Valley and along the coast. Much of these reserves are concentrated in the southern San Joaquin Basin. Regarding renewable resources, the State leads the nation in net electricity generation from solar, geothermal, and biomass. California has considerable solar potential, especially in the southeastern deserts and several of the world's largest solar thermal plants are located in California's Mojave Desert. Although California's wind power potential is widespread, especially along the eastern and southern mountain ranges, much of the State is excluded from development of this resource because it is in wilderness areas, parks, or urban areas. The transportation sector is responsible for the most energy consumption of any sector within the State. More motor vehicles are registered in California than in any other state, and commute times in California rank among some of the longest in the country.

Regulatory Framework

The following provides a brief summary of regulations and policies pertaining to energy resources. This is not an exhaustive list of all regulations and policies.

FEDERAL

On August 8, 2005, President George W. Bush signed the Energy Policy Act of 2005 into law. This comprehensive energy legislation contains several electricity related provisions that aim to:

- Help ensure that consumers receive electricity over a dependable, modern infrastructure;
- Remove outdated obstacles to investment in electricity transmission lines;
- Make electric reliability standards mandatory instead of optional; and
- Give federal officials the authority to site new power lines in Department of Energy designated national corridors in certain circumstances.

STATE

CEQA Guidelines Appendix F provides a goal of conserving energy in the state of California. The appendix indicates the following methods to achieve this goal: (1) decreasing overall per capita energy consumption, (2) decreasing reliance on natural gas and oil, and (3) increasing reliance on renewable energy sources.

The California Renewables Portfolio Standard (RPS) Program, which was established in 2002 under Senate Bill (SB) 1078, accelerated in 2006 under SB 107, expanded in 2011 under SB 2 and further expanded in 2015 under SB 350, California's RPS is one of the most ambitious renewable energy standards in the country. The RPS Program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. On September 12, 2002, then-Governor Gray Davis signed SB 1078. 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. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, then-Governor Arnold Schwarzenegger signed Executive Order S-14-08, which expands the RPS to 33 percent renewable power by 2020. In September 2009, Governor Schwarzenegger continued California's commitment to the RPS by signing Executive Order S-21-09, which directs the California Air Resources Board (CARB) under its Assembly Bill (AB) 32 authority to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020.

The 33 percent by 2020 goal was codified in April 2011 with SB X1-2, which was signed by Governor Edmund G. Brown, Jr. This RPS preempts the CARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. These entities must adopt the new RPS goals of 20 percent of retail sales from renewables by the end of 2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.

The Clean Energy and Pollution Reduction Act of 2015, SB 350 (Chapter 547, Statutes of 2015) was approved by Governor Edmund G. Brown, Jr. on October 7, 2015. SB 350 does the following: (1) increases the standards of the RPS program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; (2) requires the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; (3) provides for the evolution of the Independent System Operator into a regional organization; and (4) requires the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (SB 350, Clean Energy and Pollution Reduction Act 2015).

Title 24 of the California Code of Regulations comprises the State Building Standards Code. Part 6 of Title 24 is the California Energy Code that includes the building energy efficiency standards. The standards include provisions applicable to all buildings, residential and non-residential, and describe the requirements for documentation to certify that building designs meets the standards.

Executive Order S-06-06 establishes targets for the use and production of biofuels and bio-power and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its bio-fuels within California by 2010, 40 percent by 2020, and 75 percent by 2050.

On April 29, 2015, Governor Edmund G. Brown Jr. signed Executive Order B-30-15, establishing a new statewide goal to reduce greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030. SB 1389 requires the California Energy Commission to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety.

LOCAL

On May 15, 2007, Los Angeles Mayor Antonio Villaraigosa released the "GREEN LA – An Action Plan to Lead the Nation in Fighting Global Warming" (GREEN LA Plan) that has an overall goal of reducing the City of Los Angeles' GHG emissions by 35 percent below 1990 levels by 2030. This goal exceeds the targets set by both California and the Kyoto Protocol and is the greatest reduction target of any large United States city. The cornerstone of the GREEN LA Plan is increasing the City's use of renewable energy to 35 percent by 2020.

On April 8, 2015, Mayor Eric Garcetti released the Sustainable City pLAn (pLAn), a roadmap to achieve back to basics short-term results while setting the path to strengthen and transform the City. The pLAn is made up of short-term (by 2017) and longer-term (by 2025 and 2035) targets in 14 categories to advance the City's environment, economy, and equity. The pLAn provides strategies to create a more sustainable and livable city by: improving land use planning to promote neighborhood quality of life; conserving energy and water; mitigating and adapting to climate change; building transit options for an accessible future; promoting affordability and environmental justice; and restoring and reinventing the Los Angeles River.

In April 2019, Mayor Eric Garcetti released L.A.'s Green New Deal (Sustainable City pLAn 2019). Rather than an adopted plan, the Green New Deal is a mayoral initiative that consists of a program of actions designed to create sustainability-based performance targets through 2050 that advance economic, environmental, and equity objectives. 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. It augments, expands, and elaborates in even more detail Los Angeles' vision for a sustainable future, and it addresses climate change with accelerated targets and new aggressive goals. L.A.'s Green New Deal contains an extensive list of commitments to enhance energy efficiency through various initiatives throughout the City:

- 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 sf for all building types 22 percent by 2025; 34 percent by 2035; and 44 percent by 2050 (from a baseline of 68 million BTU/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 vehicle miles traveled (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 0.5 miles of a park or open space is at least 65 percent by 2025; 75 percent by 2035; and 100 percent by 2050.

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 LA100 Plan 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 LA100 Plan includes numerous updates related to new renewable projects, associated transmission upgrade cost and fuel cost assumptions, staffing requirements, and several other critical updates. The LA100 Plan utilized 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.⁵

Significance Thresholds

This Assessment was undertaken to determine whether construction or operation of the proposed project would have the potential to result in significant environmental impacts related to Energy 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 Energy Resources if the proposed project would:

- Result in potentially significant environment impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; and/or,
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Methodology

Appendix F of the CEQA Guidelines states that the goal of conserving energy implies the wise and efficient use of energy, to be achieved by decreasing overall per capita energy consumption; decreasing reliance on natural gas and oil; and increasing reliance on renewable energy resources. To assure energy implications are considered in project decisions, CEQA requires that environmental impact reports include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. Energy resource assessments should consider both direct and indirect expenditures of energy during construction and operation of projects. Other than the use of site security lighting during operations, which would consume a negligible amount for electricity, implementation of the proposed project would not introduce any new temporary or permanent uses or facilities that would require electricity or natural gas; therefore, these resources did not require any quantitative assessment.

Construction of the proposed project would employ off-road equipment and on-road vehicles powered by petroleum-based transportation fuels. The air quality analysis prepared for the proposed project, included in the appendix for the environmental documentation, includes an inventory of the construction equipment activity and estimates of carbon dioxide (CO₂) emissions that would be generated by vehicle trips that were prepared using the California Emissions Estimator Model (CalEEMod, Version 2020.4.0). Fuel consumption factors from the CARB off-road equipment model in terms of gallons per horsepower-hour (gal/hp-hr.) were used to estimate diesel fuel consumption in off-road equipment during proposed project construction.

⁵LADWP, 2022 *Power Strategic Long-Term Resource Plan*, adopted December 2021.

On-road vehicle fuel consumption was estimated using the CalEEMod output for daily CO₂ emissions in pounds per day (lbs/day) from worker trips (motor gasoline) and vendor and haul truck trips (diesel fuel) and carbon content factors from the United States Environmental Protection Agency (USEPA) *Emission Factors for Greenhouse Gas Inventories* document.⁶ The USEPA estimates the carbon intensity of motor gasoline and diesel fuel to be 19.36 lbs CO₂/gallon-gas and 22.51 lbs. CO₂/gallon-diesel, respectively. Daily motor gasoline and diesel fuel consumption during each phase of construction were estimated by multiplying the daily CO₂ emissions from each vehicle type by the corresponding carbon intensity factor, then multiplying by the total number of workdays that would occur under each phase. Detailed emissions modeling files can be found in the **Appendix**, along with transportation fuels consumption calculations.

Impact Assessment

a) Would the proposed project result in potentially significant environment impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? (Less-than-Significant Impact)

The following analysis discusses short-term (construction) and long-term (operational) use of electricity, natural gas, and petroleum.

ELECTRICITY

Construction. Construction of the proposed project would require electricity for operation of electrically powered hands tools. However, electricity for construction activities would be provided by diesel generators. Electricity would be generated by on-site use of petroleum products. Therefore, construction of the proposed project would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of electricity.

Operation. Operation of the proposed project would not interfere with the existing electricity service infrastructure, nor would it impede the LADWP efforts to expand its renewable resources. Therefore, implementation of the proposed project would have a less-than-significant impact related to operational electricity consumption.

NATURAL GAS

Construction. Construction activities typically do not require the consumption of natural gas to power equipment or heavy machinery. Natural gas that would be consumed during construction would be negligible and would not result in a significant drain on natural gas resources. Therefore, construction of the proposed project would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of natural gas.

Operation. Future operation of the proposed project would not use natural gas. Therefore, operation of the proposed project would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of natural gas.

⁶USEPA, *Emission Factors for Greenhouse Gas Inventories*, March 2023.

PETROLEUM

Construction. Petroleum fuels would be consumed during construction activities by heavy-duty equipment, which is usually diesel powered, as well as on-road vehicles used by the construction crews, vendor deliveries, and haul trucks. **Table 1** shows that a one-time expenditure of approximately 1,438,473 gallons of diesel fuel and 62,780 gallons of gasoline would be needed to construct the proposed project. Averaged over the 10-year construction timeline, equipment and vehicles employed to construct the proposed project would consume approximately 143,848 gallons of diesel fuel and 6,278 gallons of gasoline per year. The proposed project would use best practices to eliminate the potential for the wasteful consumption of petroleum. Exported materials (e.g., soil hauling) would be disposed of at the closest facility that is able to accept such materials, and the proposed project would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to five minutes. Petroleum use would be minimized to the extent feasible and represents a relatively small amount of fuel consumption. Therefore, construction of the proposed project would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of petroleum.

TABLE 1: CONSTRUCTION PETROLEUM DEMAND	
Fuel Type/End Use	Gallons of Fuel
DIESEL	
<i>Open Trench Construction</i>	
Off-Road Equipment	788,653
Vendor Delivery Trips	58,363
Disposal Hauling Trips	156,363
<i>Open Trench Subtotal</i>	<i>1,003,379</i>
<i>Pipe-Jacking Construction</i>	
Off-Road Equipment	418,878
Vendor Delivery Trips	7,238
Disposal Hauling Trips	8,978
<i>Pipe-Jacking Subtotal</i>	<i>435,094</i>
Total Diesel Consumption	1,438,473
<i>Annual Average Consumption (gallons/year)</i>	<i>143,848</i>
GASOLINE	
Construction Crew Trips – Open Trench Construction	50,629
Construction Crew Trips – Pipe-Jacking Construction	12,151
Total Gasoline Consumption	62,780
<i>Annual Average Consumption (gallons/year)</i>	<i>6,278</i>
SOURCE: CARB, 2018; USEPA, 2023; TAHA, 2025.	

Operation. Activities associated with long-term operations and maintenance would be minimal, limited to scheduled maintenance or emergency repair. No additional permanent LADWP workforce would be required to operate the proposed project. Periodic maintenance would require a small amount of transportation fuel for site inspections. Furthermore, by replacing the existing trunk line the proposed project would reduce the necessary frequency of maintenance and servicing trips to the trunk line compared to existing maintenance requirements. Therefore, operation of the proposed project would result in a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of petroleum products.

b) Would the proposed project conflict with or obstruct a State or local plan for renewable energy or energy efficiency? (Less-than-Significant Impact)

There is no potential for the project to conflict with renewable energy or energy efficiency plans. The proposed project would not use a significant amount of transportation fuel, electricity, or natural gas. Construction activities would use best practices to eliminate the potential for the wasteful consumption of energy (e.g., compliance with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to five minutes). Furthermore, implementation of the proposed project would enhance the durability and dependability of LADWP's water distribution system, and would not impede the expansion of renewable energy production as outlined in the *LA100 Plan*. Therefore, the proposed project would result in a less-than-significant impact related to energy plans and energy efficiency.

References

- 42 United States Code, *Section 13201 et seq. Energy Policy Act*, 2005.
- California Air Resources Board, *2017 Off-road Diesel Emission Factors*, 2017.
- California Code of Regulations, *Title 24 Building Energy Efficiency Standards*, 2022.
- California Energy Commission, *2010–2024 CEC-A15 Results and Analysis*, 2025.
- California Energy Commission, *Energy Almanac*, available at <https://www.energy.ca.gov/data-reports/energy-almanac>, accessed April 19, 2022.
- California Gas and Electric Utilities, *2024 California Gas Report*, July 2024.
- California Public Utilities Commission, *2024 California Renewables Portfolio Standard Annual Report*, November 2024.
- City of Los Angeles, *L.A.'s Green New Deal (Sustainable City pLAn 2019)*, December 2019.
- Los Angeles Department of Water and Power, *2022 Power Strategic Long-Term Resource Plan (LA100 Plan)*, Adopted December 2021.
- Los Angeles Department of Water and Power, *Briefing Book 2019-20*, March 2020.
- Los Angeles Department of Water and Power, *2023-24 Briefing Book*, May 2024.
- The Climate Registry, *General Reporting Protocol*, 2019.
- U.S. Energy Information Administration, *California Natural Gas Consumption by End Use*, December 31, 2024.
- U.S. Energy Information Administration, *California State Energy Profile*, updated September 18, 2025.
- United States Environmental Protection Agency, *Emission Factors for Greenhouse Gas Inventories*, March 2023.

APPENDIX

Construction Energy Calculations

Open Trench Construction Equipment Fuel Consumption Calculations

Open Trench

23,811 total length (ft)

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Rate
Demo/Site Prep	Linear, Grubbing & Land Clearing	7/3/2028	7/3/2028	5	300	80 ft/day
Excavation & Shoring	Linear, Grading & Excavation	7/4/2028	7/4/2028	5	800	30 ft/day
Pipe Installation	Linear, Drainage, Utilities, & Sub-Grade	7/5/2028	7/5/2028	5	600	40 ft/day
Backfill	Linear, Trenching	7/6/2028	7/6/2028	5	400	60 ft/day
Work Site Restoration	Linear, Paving	7/7/2028	7/7/2028	5	400	60 ft/day

Diesel Equipment		gal/bhp-hr	
HP>100	BSFC (lb/hp-hr)	0.367	0.36700
HP<100	BSFC (lb/hp-hr)	0.408	0.40800
Unit conversion (lb/gallon)		7.1089	

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor	Days	Total HP-Hrs	Diesel Fuel (Gallons)
Demo/Site Prep	Excavators	Diesel	Average	1	5	36	0.38	300	20,520.0	8,373
Demo/Site Prep	Tractors/Loaders/Backhoes	Diesel	Average	1	4	84	0.37	300	37,296.0	15,217
Demo/Site Prep	Forklifts	Diesel	Average	1	8	82	0.2	300	39,360.0	16,059
Demo/Site Prep	Air Compressors	Diesel	Average	1	6	37	0.48	300	31,968.0	13,043
Demo/Site Prep	Generator Sets	Diesel	Average	1	2	14	0.74	300	6,216.0	2,537
Excavation & Shoring	Excavators	Diesel	Average	1	5	36	0.38	800	54,720.0	22,326
Excavation & Shoring	Tractors/Loaders/Backhoes	Diesel	Average	1	4	84	0.37	800	99,456.0	40,579
Excavation & Shoring	Skid Steer Loaders	Diesel	Average	1	6	71	0.37	800	126,096.0	51,448
Excavation & Shoring	Forklifts	Diesel	Average	1	8	82	0.2	800	104,960.0	42,824
Excavation & Shoring	Generator Sets	Diesel	Average	1	2	14	0.74	800	16,576.0	6,764
Pipe Installation	Generator Sets	Diesel	Average	1	2	14	0.74	600	12,432.0	5,073
Pipe Installation	Tractors/Loaders/Backhoes	Diesel	Average	1	4	84	0.37	600	74,592.0	30,434
Pipe Installation	Welders	Diesel	Average	1	6	46	0.45	600	74,520.0	30,405
Pipe Installation	Forklifts	Diesel	Average	1	8	82	0.2	600	78,720.0	32,118
Pipe Installation	Cranes	Diesel	Average	2	6	367	0.29	600	766,296.0	281,231
Work Site Restoration	Paving Equipment	Diesel	Average	1	8	89	0.36	400	102,528.0	41,832
Work Site Restoration	Plate Compactors	Diesel	Average	1	8	8	0.43	400	11,008.0	4,492
Work Site Restoration	Sweepers/Scrubbers	Diesel	Average	1	4	36	0.46	400	26,496.0	10,811
Work Site Restoration	Rollers	Diesel	Average	1	4	36	0.38	400	21,888.0	8,931
Work Site Restoration	Forklifts	Diesel	Average	1	8	82	0.2	400	52,480.0	21,412
Work Site Restoration	Generator Sets	Diesel	Average	1	2	14	0.74	400	8,288.0	3,382
Work Site Restoration	Air Compressors	Diesel	Average	1	6	37	0.48	400	42,624.0	17,391
Backfill	Excavators	Diesel	Average	1	5	36	0.38	400	27,360.0	11,163
Backfill	Tractors/Loaders/Backhoes	Diesel	Average	1	4	84	0.37	400	49,728.0	20,290
Backfill	Skid Steer Loaders	Diesel	Average	1	6	71	0.37	400	63,048.0	25,724
Backfill	Forklifts	Diesel	Average	1	8	82	0.2	400	52,480.0	21,412
Backfill	Generator Sets	Diesel	Average	1	2	14	0.74	400	8,288.0	3,382

Total Fuel (Gallons) 788,653

Open Trench Construction On-Road Vehicles Fuel Consumption
(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	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	546		
Demolition			
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	6,075.5	G
Vendor	597	7,956.8	D
Hauling	1304	17,379.6	D

**USEPA 2023 Fuel Carbon Intensity
Factors**

kgCO ₂ /gal-D	10.21
kgCO ₂ /gal-G	8.78
lbCO ₂ /gal-D	22.51
lbCO ₂ /gal-G	19.36

Source:

Federal Register USEPA; 40 CFR Part 98: e-CFR,

[https://www.ecfr.gov/current/title-](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98)

[40/chapter-I/subchapter-C/part-98](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98)

Table C-1 (78 FR 71950, Nov. 29, 2013,

amended at 81 FR 89252, Dec. 9, 2016)

3.3. Excavation & Shoring (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	596		
Dust From Material Movement			
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	16,201.2	G
Vendor	597	21,218.0	D
Hauling	2607	92,655.6	D

3.5. Pipe Installation (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	1965		
Onsite truck	0		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	12,150.9	G
Vendor	299	7,970.1	D
Hauling	0	0.0	D

Open Trench Construction On-Road Vehicles Fuel Consumption
(Daily Emissions from CalEEMod Report)

3.9. Backfill (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	596		
Dust From Material Movement			
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	8,100.6	G
Vendor	597	10,609.0	D
Hauling	2607	46,327.8	D

3.7. Work Site Restoration (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	801		
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	8,100.6	G
Vendor	597	10,609.0	D
Hauling	0	0.0	D
		Total Fuel (Gallons)	
		50,629	G
		58,363	D
		156,363	D
Grand Total (MTCO ₂ e)	4,646.9	1,003,379	Total D (V+E)
Annual Average (10 years)	464.7		

Pipe-jacking Construction Equipment Fuel Consumption Calculations

Pipe-Jacking

2600 total length (ft)

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per	Phase Description
Demo/Site Prep	Linear, Grubbing & Land Cle	7/3/2028	7/3/2028	5	50	Demolish & remove road surface.
Excavation & Shoring	Linear, Grading & Excavatio	7/4/2028	7/4/2028	5	150	Excavate jacking pits.
Pipe Installation	Linear, Drainage, Utilities, &	7/5/2028	7/5/2028	5	275	Pipe-Jacking (~10 ft/day)
Backfill	Linear, Trenching	7/6/2028	7/6/2028	5	50	Backfill jacking pits.
Work Site Restoration	Linear, Paving	7/7/2028	7/7/2028	5	75	Resurface road.

Diesel Equipment			gal/bhp-hr
HP>100	BSFC (lb/hp-hr)	0.367	0.36700
HP<100	BSFC (lb/hp-hr)	0.408	0.40800
Unit conversion (lb/gallon)			7.1089

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor	Days	Total HP-Hrs	Diesel Fuel (Gallons)
Demo/Site Prep	Concrete/Industrial Saws	Diesel	Average	1	8	33	0.73	50	9,636	3,932
Demo/Site Prep	Excavators	Diesel	Average	1	8	36	0.38	50	5,472	2,233
Demo/Site Prep	Air Compressors	Diesel	Average	1	8	37	0.48	50	7,104	2,899
Demo/Site Prep	Rubber Tired Loaders	Diesel	Average	1	8	150	0.36	50	21,600	7,928
Demo/Site Prep	Forklifts	Diesel	Average	1	8	82	0.2	50	6,560	2,677
Excavation & Shoring	Excavators	Diesel	Average	2	8	36	0.38	150	32,832	13,396
Excavation & Shoring	Rubber Tired Loaders	Diesel	Average	1	8	150	0.36	150	64,800	23,782
Excavation & Shoring	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37	150	37,296	15,217
Excavation & Shoring	Generator Sets	Diesel	Average	1	8	14	0.74	150	12,432	5,073
Excavation & Shoring	Cranes	Diesel	Average	2	6	150	0.29	150	78,300	28,737
Excavation & Shoring	Forklifts	Diesel	Average	1	8	82	0.2	150	19,680	8,030
Excavation & Shoring	Air Compressors	Diesel	Average	1	8	37	0.48	150	21,312	8,696
Excavation & Shoring	Welders	Diesel	Average	1	8	46	0.45	150	24,840	10,135
Pipe Installation	Generator Sets	Diesel	Average	1	8	200	0.74	275	325,600	119,496
Pipe Installation	Pumps	Electric	Average	1	8	28	0.74	275	45,584	18,599
Pipe Installation	Bore/Drill Rigs	Electric	Average	1	8	83	0.5	275	91,300	37,251
Pipe Installation	Pressure Washers	Diesel	Average	1	3	14	0.3	275	3,465	1,414
Pipe Installation	Cranes	Diesel	Average	1	6	150	0.29	275	71,775	26,342
Pipe Installation	Welders	Diesel	Average	1	8	46	0.45	275	45,540	18,581
Work Site Restoration	Paving Equipment	Diesel	Average	1	8	89	0.36	75	19,224	7,844
Work Site Restoration	Rollers	Diesel	Average	1	8	36	0.38	75	8,208	3,349
Work Site Restoration	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37	75	18,648	7,609
Work Site Restoration	Plate Compactors	Diesel	Average	1	8	8	0.43	75	2,064	843
Work Site Restoration	Forklifts	Diesel	Average	1	8	82	0.2	75	9,840	4,015
Work Site Restoration	Air Compressors	Diesel	Average	1	8	37	0.48	75	10,656	4,348
Backfill	Excavators	Diesel	Average	2	8	36	0.38	50	10,944	4,466
Backfill	Cranes	Diesel	Average	1	6	367	0.29	50	31,929	11,718
Backfill	Generator Sets	Diesel	Average	1	8	14	0.74	50	4,144	1,691
Backfill	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37	50	12,432	5,073
Backfill	Rubber Tired Loaders	Diesel	Average	1	8	150	0.36	50	21,600	7,928
Backfill	Air Compressors	Diesel	Average	1	8	37	0.48	50	7,104	2,899
Backfill	Forklifts	Diesel	Average	1	8	82	0.2	50	6,560	2,677

Total Fuel (Gallons) 418,878

Pipe-Jacking Construction On-Road Vehicles Fuel Consumption
(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	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	1218		
Demolition			
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	1,012.6	G
Vendor	299	664.2	D
Hauling	652	1,448.3	D

**USEPA 2023 Fuel Carbon Intensity
Factors**

kgCO ₂ /gal-D	10.21
kgCO ₂ /gal-G	8.78
lbCO ₂ /gal-D	22.51
lbCO ₂ /gal-G	19.36

Source:

Federal Register USEPA; 40 CFR Part 98: e-CFR,

<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98>

Table C-1 (78 FR 71950, Nov. 29, 2013, amended at 81 FR 89252, Dec. 9, 2016)

3.3. Excavation & Shoring (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	2326		
Dust From Material Movement			
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	3,037.7	G
Vendor	299	1,992.5	D
Hauling	652	4,344.9	D

3.5. Pipe Installation (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	2011		
Onsite truck	0		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	5,569.2	G
Vendor	239	2,919.9	D
Hauling	0	0.0	D

Pipe-Jacking Construction On-Road Vehicles Fuel Consumption
(Daily Emissions from CalEEMod Report)

3.9. Backfill (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	2253		
Dust From Material Movement			
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	1,012.6	G
Vendor	299	664.2	D
Hauling	652	1,448.3	D

3.7. Work Site Restoration (2028) - Unmitigated

Location	lbs-CO ₂ T		
Onsite			
Daily, Summer (Max)			
Off-Road Equipment	1095		
Onsite truck	4.8		
Offsite			
Daily, Summer (Max)		Fuel (Gallons)	Fuel Type
Worker	392	1,518.9	G
Vendor	299	996.3	D
Hauling	521	1,736.0	D
		Total Fuel (Gallons)	
		12,151	G
		7,238	D
		8,978	D
		435,094	Total D (V+E)

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 Equipm ent	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
Architect ural Coating s	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 Equipm ent	< 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
Architect ural Coating s	< 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	—	0.36	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%
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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.