APPENDIX E
Greenhouse Gas Emissions Assessment

Technical Memorandum

TO: Cristina Lowery
AECOM

FROM: Terry A. Hayes Associates Inc.

DATE: March 18, 2020

RE: Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project – Greenhouse Gas (GHG) Emissions Assessment

Introduction

Terry A. Hayes Associates Inc. (TAHA) has completed a GHG Emissions Assessment for the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) in accordance with the provisions of the California Environmental Quality Act (CEQA) Statutes and Guidelines. The Air Quality Assessment is organized as follows:

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

Project Description

The Los Angeles Department of Water and Power (LADWP) proposes to implement the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) within its Silver Lake Reservoir Complex (SLRC), which comprises the Silver Lake and Ivanhoe Reservoirs (the reservoirs).

The proposed project would be located in the Silver Lake community of the City of Los Angeles, approximately five miles north of downtown Los Angeles. **Figure 1** shows the regional vicinity of the project site. **Figure 2** shows the project location. The reservoirs require an aeration and recirculation system to ensure that reasonable water quality parameters are met for visual aesthetics and controlling odors. The proposed project would include the installation of a bubble plume aeration system and a recirculation pipe system to ensure oxygenation and destratification of the reservoirs. Destratification allows for the mixing of the reservoir water to allow for oxygen levels to be maintained throughout the reservoir. **Figure 3** shows the aeration and recirculation systems proposed to be installed in the reservoirs. The proposed project would be implemented in two phases as described below.

Terry A. Hayes Associates Inc.
3535 Hayden Avenue, Suite 350
Culver City, California 90232
310.839.4200 fax 310.839.4201

Source: Esri Maps & Data, 2019.

Miles
0 3 6 12 18 24

Figure 1
Regional Map

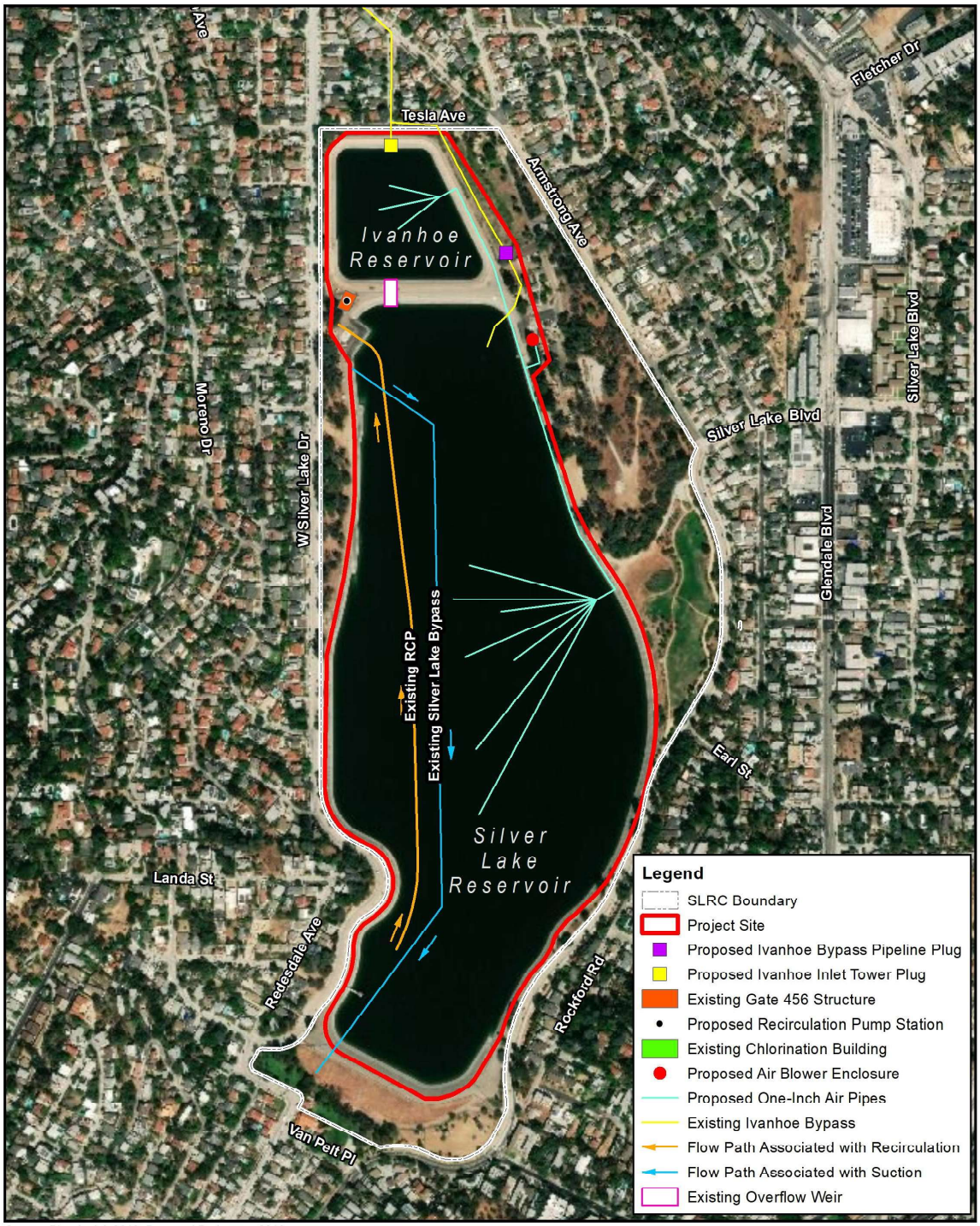
Source: Esri, 2020; Prepared By AECOM, 2020.

0 250 500 1,000 Feet

SLRC Boundary

Project Site

Figure 2
Project Location Map



Source: Bing Aerial, 2019; Prepared By Aecom, 2019.

0 250 500 1,000 Feet

Figure 3
Proposed Project
Aeration and Recirculation System

Phase 1 would include installation of an aeration system consisting of air blowers, air piping to each of the reservoirs, bubble plume system diffusers in each of the reservoirs, and aftercoolers. Two air blowers would be installed for each reservoir, including one in continuous operation and one to serve as a backup. The air blowers would be housed in an enclosure with ventilation and sound insulation. The air blower package enclosure would be located inside an existing chlorination building in the northeast portion of the SLRC between the two reservoirs.

Phase 2 would include the installation of a recirculation system consisting of a recirculation pump station, recirculation piping, and inflow from Ivanhoe Reservoir to Silver Lake Reservoir via the existing overflow weir. Additionally, two concrete plugs and approximately 400 feet of new recirculation piping would be installed within Ivanhoe Reservoir. The concrete plugs would be installed at the existing Ivanhoe Bypass and Ivanhoe Inlet Tower. The recirculation pump equipment would be installed at the existing Gate 456 structure, which is a fenced gate structure on the northwest corner of Silver Lake Reservoir that was historically used for water bypass when both Silver Lake and Ivanhoe Reservoirs were connected to the potable water system. Two submersible recirculation pumps would be installed along the depths of both Silver Lake and Ivanhoe Reservoirs and within the Gate 456 structure, with one pump on duty and the other on standby during normal operations. Both pumps would have the flexibility to operate simultaneously under special conditions. Suction intake would be located at the south end of the Silver Lake Reservoir along the existing Silver Lake Bypass pipeline and discharge would occur at the north end of Ivanhoe Reservoir. The recirculation piping would be connected to the recirculation pump to transfer water from Silver Lake Reservoir to Ivanhoe Reservoir over a partition wall within the Gate 456 structure. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs.

Construction Activities and Schedule

Construction of Phase 1 is anticipated to begin in November 2020 and take approximately 13 months to complete, concluding in December 2021. Construction of Phase 2 is anticipated to begin at the end of Phase 1 and take approximately 16 months to complete. Construction activities would occur Mondays through Friday from 7:00 a.m. to 3:00 p.m. Construction vehicle access would be available via the existing driveway at the northeastern corner of the SLRC near the intersection of Tesla Avenue and Armstrong Avenue. It is anticipated that haul trucks and construction workers would travel south to the project site from Sun Valley using Interstate 5 (I-5), then travel south on Riverside Drive to Glendale Boulevard, and then west on Lakewood Avenue to Armstrong Avenue. All construction activities would occur completely within the boundaries of the SLRC. Construction staging and laydown areas would also occur within the SLRC.

Phase 1 – Reservoir Aeration. Construction activities at each reservoir would consist of construction of the aeration header at the existing chlorination building, installation of the pre-assembled air blower enclosures for the aeration system, installation of the pipeline connections, and assembly of the diffusers. As previously discussed, the air blowers for the aeration system would be housed in a sound-insulated enclosure. Site preparation for the enclosure would include demolition of existing concrete slabs, installation of 40 polyvinyl chloride (PVC) conduits, and construction and casting of concrete and equipment pads. The concrete and equipment pads would require the site to be cleared, excavated up to three feet, and graded. The enclosure units would be installed within the existing chlorination building behind its concrete walls.

Following construction of the air blower enclosures, air pipes would be installed from the air blowers to diffuser systems at each reservoir. The pipes would be installed underground utilizing trenching and backfilling methods, with the exception of self-weighted lines that would extend within the reservoir.

Approximately 1,021 linear feet of pipeline would be required for Ivanhoe Reservoir and approximately 1,076 linear feet of pipeline would be required for Silver Lake Reservoir. As previously discussed, the diffusers would consist of a diffuser and a manifold, which would be strategically placed across the reservoirs for optimal aeration. After installation of the pipelines and diffuser systems, the existing control panel would be moved from the existing chlorination building to the newly constructed enclosures. The air blowers and associated piping and supports and ventilation system would be installed within the enclosure. Aftercoolers would be located outside of the enclosures, and a sunshade and would be constructed to protect the equipment. It is estimated that 120 megawatt-hours (MWh) of energy would be used by the recirculation network during Phase 1.

It is anticipated that approximately 1,102 cubic yards of materials would be imported to the project site, including 684 cubic yards of crushed aggregate base, 78 cubic yards of asphalt, 98 cubic yards of concrete, and 233 cubic yards of slurry. Additionally, approximately 1,045 cubic yards of materials would be excavated and exported from the project site, including 982 cubic yards of soil, 35 cubic yards of asphalt, and 28 cubic yards of concrete. Materials required for construction would be stored on site, with the exception of asphalt and concrete. Construction of Phase 1 of the proposed project would require a total of approximately 277 truck trips consisting of 101 trips for imported materials, 88 trips for exported materials, and 88 additional haul truck trips.

The estimated daily average of on-site workers would consist of a peak of 29 workers per day. Construction worker vehicle trips would account for approximately 277 roundtrips for the duration of 13 months, with an average of approximately 22 roundtrips per month.

Construction activities for Phase 2 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site. The estimated daily peak number of equipment on-site would be three pieces with an average of two pieces. The estimated daily peak number of trucks on-site would be six trucks with a daily average of three trucks on-site for the entire duration of Phase 2.

Phase 2 - Recirculation System. Construction activities for Phase 2 include installation of pipeline in Ivanhoe Reservoir, installation of concrete plugs at the existing Ivanhoe Bypass and Ivanhoe Inlet tower, demolition of the existing equipment in the Gate 456 structure, installation of a suction intake on the existing Silver Lake bypass pipeline, and construction of the recirculation pump station within the Gate 456 structure, including a partition wall. Demolition would involve removal of existing electrical and mechanical equipment and an existing concrete slab within the Gate 456 structure.

Prior to installation of the concrete plugs, the water from Ivanhoe Reservoir would be pumped into Silver Lake Reservoir. Following draining of the water, 400 linear feet of pipeline would be placed and casted with concrete within Ivanhoe Reservoir to recirculate water within this reservoir. The concrete plugs would be formed on-site, placed in the Ivanhoe Bypass and then the Ivanhoe Tower Inlet, and finished with additional concrete.

The recirculation pump station equipment would be located within the Gate 456 structure adjacent to the equipment enclosures associated with the Silver Lake Regulating Station. Construction activities for the recirculation pump station would include excavation up to four feet for a 15-foot by 27-foot duct bank, construction of 40 PVC conduits, casting equipment pads and concrete slabs for a 6-foot by 3-foot sized enclosure, installation of the control system, and connecting the control panel to the equipment and pipes. The pumps would be placed below-grade within a hydraulic structure, which would be shielded from view at the

property line. It is estimated that 97 MWh of energy per year would be used by the recirculation network during Phase 2. This would result in total annual energy us of 217 MWh.

Approximately 100 feet of piping would be installed within the Gate 456 structure, which would pump water from Silver Lake Reservoir over a partition wall to Ivanhoe Reservoir. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs. Following installation of the piping, Ivanhoe Reservoir would be refilled via gravity through the existing Gate 456 structure.

It is anticipated that approximately 167 cubic yards of materials would be imported to the project site consisting of 21 cubic yards of crushed aggregate base, 5 cubic yards of asphalt, 141 cubic yards of concrete, and 8 cubic yards of slurry. Additionally, approximately 64 cubic yards of materials would be exported from the project site consisting of 35 cubic yards of soil, 2 cubic yards of asphalt, and 27 cubic yards of concrete. Materials required for construction, except for asphalt and concrete, would be stored on site. Construction of Phase 2 of the proposed project would require a total of approximately 81 truck trips consisting of 45 trips for imported materials, 8 trips for exported materials, and 28 additional haul truck trips. The estimated daily peak number of on-site workers would be 22 workers. Construction worker vehicle trips would account for approximately 278 roundtrips for the duration of 16 months, with an average of approximately 18 roundtrips per month.

Construction activities for Phase 2 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site. The estimated daily peak number of equipment on site would be 3 pieces with an average of 2 pieces. The estimated daily peak number of trucks on site would be 6 trucks with a daily average of 3 trucks on site for the entire duration of Phase 2.

GHG Topical Information

GHG emissions refer to a group of emissions that are generally believed to affect global climate conditions. The greenhouse effect compares the Earth and the atmosphere surrounding it to a greenhouse with glass panes. The glass panes in a greenhouse let heat from sunlight in and reduce the amount of heat that escapes. GHGs, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), keep the average surface temperature of the Earth close to 60-degree Fahrenheit (°F). Without the natural greenhouse effect, the Earth's surface would be about 61°F cooler.[1]

In addition to CO_2, CH_4, and N_2O, GHGs include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), black carbon (black carbon is the most strongly light-absorbing component of particulate matter emitted from burning fuels such as coal, diesel, and biomass), and water vapor. CO_2 is the most abundant pollutant that contributes to climate change through fossil fuel combustion. The other GHGs are less abundant but have higher global warming potential than CO_2. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent of CO_2, denoted as CO_2e. CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a

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

GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. **Table 1** shows various GWP.

TABLE 1: GLOBAL WARMING POTENTIAL FOR VARIOUS GREENHOUSE GASES

Pollutant	Lifetime (Years)	Global Warming Potential (20-Year)	Global Warming Potential (100-Year)
Carbon Dioxide (CO_2)	--	1	1
Methane (CH_4)	12	21	25
Nitrous Oxide (N_2O)	114	310	298
Nitrogen Trifluoride	740	Unknown	17,200
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800
Perfluorocarbons (PFCs)	2,600-50,000	6,500-9,200	7,390-12,200
Hydrofluorocarbons (HFCs)	1-270	140-11,700	124-14,800

SOURCE: CARB, *First Update to the Climate Change Scoping Plan*, 2014.

Regulatory Framework

In response to growing scientific and political concern with global climate change, a series of federal and state laws have been adopted to reduce GHG emissions. The following provides a brief summary of GHG regulations and policies. This is a not an exhaustive list of all regulations and policies.

Federal

***Massachusetts vs. Environmental Protection Agency*, 127 S. Ct. 1438 (2007)**. A Supreme Court ruling that CO_2 and other GHGs are pollutants under the Clean Air Act.

Energy Independence and Security Act. This act set a Renewable Fuel Standard of 36 billion gallons of biofuel usage by 2022, increases Corporate Average Fuel Economy Standards of setting 35 miles per gallon of cars and light trucks by 2020 and sets new standards for lighting and residential and commercial appliance equipment.

National Fuel Efficiency Policy and Fuel Economy Standards. This 2009 policy was designed to increase fuel economy by more than five percent by 2016 starting with model year 2012 cars and trucks.

Heavy-Duty Vehicle Program. This 2011 program established the first fuel efficiency requirements for medium- and heavy-duty vehicles beginning with model year 2014.

State

Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 of the California Code of Regulations). Title 24 standards contain energy and water efficiency requirements (and indoor air quality requirements) for newly constructed buildings, additions to existing buildings, and alterations to existing buildings.

California Green Building Code. Also referred to as CalGreen, lays out minimum requirements for newly constructed buildings in California, which will reduce GHG emissions through improved efficiency and process improvements.

Senate Bill 1078 (SB 1078), Senate Bill 107 (SB 107), and Executive Order (E.O.) S-14-08 (Renewables Portfolio Standard). Signed on September 12, 2002, SB 1078 required California to generate 20 percent of its electricity from renewable energy by 2017. SB 107, signed on September 26, 2006 changed the due date for this goal from 2017 to 2010, which was achieved by the state. On November 17, 2008, E.O. S-14-08 established a Renewables Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020.

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

Assembly Bill 32. The California Global Warming Solutions Act of 2006, also known as Assembly Bill 32, focuses on reducing GHG emissions in California and requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to Statewide levels in 1990 by 2020. The 2020 target reductions were estimated to be 174 million metric tons of CO2e. In November 2017 CARB adopted the final 2017 Scoping Plan: The Strategy for Achieving California's 2030 GHG target (2017 Scoping Plan). The 2017 Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals.

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

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

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

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

Regional

Southern California Association of Governments (SCAG) 2016–2040 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS). SCAG is the MPO for the six-county region that includes Los Angeles, Orange, Riverside, Ventura, San Bernardino and Imperial counties. The 2016-2040 RTP/SCS includes commitments to reduce emissions from transportation sources to comply with SB 375. Goals and policies included in the 2016-2040 RTP/SCS to reduce air pollution consist of adding density in proximity to transit stations, mixed-use development and encouraging active transportation (i.e., non-motorized transportation such as bicycling).

Local

GreenLA Climate Action Plan. The City of Los Angeles has issued guidance promoting sustainable development to reduce GHG emissions citywide in the form of a Climate Action Plan. The objective of GreenLA is to reduce GHG emissions 35 percent below 1990 levels by 2030.

ClimateLA. In order to provide detailed information on action items discussed in GreenLA, the City published an implementation document titled ClimateLA. ClimateLA presents the existing GHG inventory for the City, describes enforceable GHG reduction requirements, provides mechanisms to monitor and evaluate progress, and includes mechanisms that allow the plan to be revised in order to meet targets. By 2030, the plan aims to reduce GHG emissions by 35 percent from 1990 levels which were estimated to be approximately 54.1 million metric tons.

Sustainable City pLAn. The pLAn is a roadmap to reducing GHG emissions by 45 percent by 2025, 60 percent by 2035, and 80 percent by 2050, all against a 1990 baseline.

Green Building Program. The purpose of the City's Green Building Program is to reduce the use of natural resources, create healthier living environments and minimize the negative impacts of development on local, regional, and global ecosystems. The program consists of a Standard of Sustainability and Standard of Sustainable Excellence.

Los Angeles Green Building Code. The Green Building Code is applicable to new buildings and alterations with building valuations over $200,000 (residential and non-residential). The Green Building Code is based on CalGreen and was developed to reduce energy use, water use, and waste.

Existing Buildings Energy and Water Efficiency Ordinance. This ordinance is designed to facilitate the comparison of buildings' energy and water consumption, and reduce building operating costs, leading to reduced GHG emissions.

EXISTING SETTING

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

Table 2 shows GHG emissions from 2008 to 2017 in California. California's GHG emissions have followed a declining trend since 2008. In 2017, emissions from routine emitting activities statewide were 63 million metric tons of CO_2e ($MMTCO_2e$) lower than 2007 levels. Of note, between October 23, 2015 and February 18, 2016, an exceptional natural gas leak event occurred at the Aliso Canyon natural gas storage facility that resulted in unexpected GHG emissions of considerable magnitude. The exceptional incident released approximately 109,000 metric tons of CH_4, which equated to approximately 1.96 $MMTCO_2e$ of unanticipated emissions in 2015 and an additional 0.52 $MMTCO_2e$ in 2016. According to the California Air Resources Board (CARB), these emissions will be mitigated in the future through projects funded by the Southern California

Gas Company based on legal settlement and are presented alongside but tracked separately from routine inventory emissions.[2,3]

TABLE 2: CALIFORNIA GREENHOUSE GAS EMISSIONS INVENTORY TREND

Sector	CO_2e Emissions (Million Metric Tons)									
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Electricity Generation (In State)	55	54	47	41	51	50	52	50	42	39
Electricity Generation (Imports)	66	48	44	47	45	40	37	34	26	24
Transportation	182	175	170	167	166	166	167	171	173	174
Industrial	100	98	102	101	102	104	105	103	101	101
Commercial	18	19	20	21	21	22	21	22	23	23
Residential	31	31	32	33	31	32	27	28	29	30
Agriculture and Forestry	35	33	34	34	35	34	35	34	34	32
Emissions Total	**487**	**457**	**449**	**444**	**451**	**448**	**445**	**441**	**429**	**424**

SOURCE: CARB, *California Greenhouse Gas Emission Inventory - 2019 Edition*, August 12, 2019.

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 GHG emissions in the context of the Appendix G Environmental Checklist criteria of the CEQA Statute and Guidelines. Implementation of the proposed project may result in a significant environmental impact related to GHG emissions if the proposed project would:

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

Section 15064.4 of the CEQA Guidelines states that a lead agency should make a good-faith effort to describe, calculate, or estimate the amount of GHG emissions resulting from a project, and that the lead agency should consider the following factors when assessing the significance of impacts from GHG emissions on the environment:

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

[2]CARB, *California Greenhouse Gas Inventory for 2000-2015 – Trends of Emissions and Other Indicators*, June 2017.
[3]CARB, *Determination of Total Methane Emissions from the Aliso Canyon Natural Gas Leak Incident*, October 2016.

The CEQA Guidelines require lead agencies to adopt GHG thresholds of significance. When adopting these thresholds, the amended Guideline allows lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence, and/or to develop their own significance threshold. Neither the City nor the South Coast Air Quality Management District (SCAQMD) has officially adopted a quantitative threshold value for determining the significance of GHG emissions that will be generated by projects under CEQA. The SCAQMD published the *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* in October 2008.[4]

The SCAQMD convened a GHG CEQA Significance Threshold Stakeholder Working Group beginning in April of 2008 to examine alternatives for establishing quantitative GHG thresholds. The Working Group proposed a 10,000 metric tons of carbon dioxide equivalents ($MTCO_2e$) per year threshold for industrial projects and a 1,400 $MTCO_2e$ annual threshold for commercial projects. Based on the available threshold concepts recommended by expert agencies, the assessment herein analyses operational emissions against SCAQMD's draft 1,400 $MTCO_2e$ bright-line threshold level. Per SCAQMD, projects below this bright-line significance criteria have a minimal contribution to cumulative global emissions and are considered to have less-than significant impacts

Methodology

GHG emissions that will be generated by the proposed project were estimated using CalEEMod, as recommended by the SCAQMD. CalEEMod quantifies GHG emissions from construction activities and future operation of projects. Sources of GHG emissions during project construction includes heavy-duty off-road diesel equipment and vehicular travel to and from the project site. Sources of GHG emissions during project operation includes energy use to operate mechanical equipment and maintenance trips. It is estimated that maintenance will occur three times per week and require one hour per visit. In accordance with SCAQMD methodology, the total amount of GHG emissions that would be generated by construction of the proposed project was amortized over a 30-year operational period to represent long-term impacts.

Impact Assessment

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

The proposed project would generate GHG emissions primarily from construction activities, maintenance activities, and electricity to operate the aeration and circulation system. **Table 3** presents the estimated emissions of GHGs that would be released to the atmosphere on an annual basis. Construction of the proposed project would produce approximately 448 $MTCO_2e$, which equates to approximately 15 $MTCO_2e$ annually when amortized over a 30-year period. The annual operating emissions for Phase 1 would be approximately 72 $MTCO_2e$ per year, including 72 $MTCO_2e$ attributed to electricity use and approximately 0.5 $MTCO_2e$ for maintenance trips. The annual operating emissions for Phase 2 would be approximately 59 $MTCO_2e$ per year, including 59 $MTCO_2e$ attributed to electricity use and approximately 0.5 $MTCO_2e$ for maintenance trips. The total annual amortized mass emissions of 147 $MTCO_2e$ is substantially below the most applicable quantitative draft interim threshold of 1,400 $MTCO_2e$ per year as recommended by the SCAQMD. Therefore, implementation of the proposed project will result in a less-than-significant impact related to GHG emissions.

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

TABLE 3: ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS	
Scenario and Source	**Annual GHG Emissions ($MTCO_2e$ per Year)**
Phase 1 Construction Emissions (Direct)	329
Phase 2 Construction Emissions (Direct)	120
Total Construction GHG Emissions (Direct)	448
30-Year Amortized Annual Construction Emissions (Direct) /a/	15
Energy Source Emissions – Electricity (Indirect)	131
Maintenance Trips (Direct)	1.1
Total Annual GHG Emissions	**147**
SCAQMD Draft Interim Significance Threshold	1,400
Exceed Threshold?	**No**
/a/ Based on SCAQMD guidance, the emissions summary also includes construction emissions amortized over a 30-year span. **SOURCE**: TAHA, 2020.	

Mitigation Measure

No mitigation measures are required.

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

There is no potential for the water aeration and recirculation system to conflict with GHG reduction plans. The GHG plan, policies, and regulations were reviewed for relevant GHG reduction strategies. No GHG reduction strategies were identified relevant to the proposed project. As previously discussed, project-related GHG emissions would be well below the level of significance. GHG emissions are regionally cumulative in nature and it is highly unlikely construction of any individual project would generate GHG emissions of sufficient quantity to conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Standard construction procedures would be undertaken in accordance with SCAQMD and CARB regulations applicable to heavy duty construction equipment and diesel haul trucks. Adhering to requirements pertinent to construction equipment maintenance and inspections and emissions standards, as well as diesel fleet requirements, including idling time restrictions and maintenance, would ensure that construction of the proposed project would not conflict with GHG emissions reduction efforts.

Mitigation Measures

No mitigation measures are required.

References

California Air Pollution Control Officers Association, *California Emissions Estimator Model (CalEEMod v2016.3.2) User's Guide*, November 2017.

California Air Resources Board, *California Greenhouse Gas Emission Inventory - 2019 Edition*, August 12, 2019.

California Air Resources Board, *California Greenhouse Gas Inventory for 2000-2015 – Trends of Emissions and Other Indicators*, June 2017.

California Air Resources Board, *Determination of Total Methane Emissions from the Aliso Canyon Natural Gas Leak Incident*, October 2016.

California Air Resources Board, *First Update to the Climate Change Scooping Plan*, May 2014.

California Environmental Quality Act Guidelines *Section 15064.4*.

South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993.

South Coast Air Quality Management District, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008

South Coast Air Quality Management District, *SCAQMD Air Quality Significance Thresholds*, March 2015.

Southern California Association of Governments, *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy*, April 2016.

Phase 1 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Phase 1 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use -

Construction Phase - From PD

Off-road Equipment - From PD. Other Construction Equipment is "barge".

Off-road Equipment - From PD

Off-road Equipment - From PD

Trips and VMT - From PD

Demolition - 28 cubic yards of concrete demolished

Grading - From PD

Vehicle Trips - 3 trips/week; 156 annual trips

Energy Use - Project produces 120 MWh during Phase 1

Water And Wastewater - No water consumed on site

Solid Waste - No waste generated on site

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	100.00	225.00
tblConstructionPhase	NumDays	1.00	60.00
tblConstructionPhase	PhaseEndDate	4/5/2021	12/17/2021
tblConstructionPhase	PhaseEndDate	11/16/2020	2/5/2021
tblConstructionPhase	PhaseStartDate	11/17/2020	2/8/2021
tblConstructionPhase	PhaseStartDate	11/14/2020	11/16/2020
tblEnergyUse	T24E	2.25	15.15
tblGrading	MaterialExported	0.00	1,045.00

Phase 1 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System - Los Angeles-South Coast County, Winter

tblGrading	MaterialImported	0.00	1,102.00
tblOffRoadEquipment	HorsePower	187.00	84.00
tblOffRoadEquipment	HorsePower	84.00	81.00
tblOffRoadEquipment	HorsePower	46.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.74
tblOffRoadEquipment	LoadFactor	0.74	0.73
tblOffRoadEquipment	LoadFactor	0.45	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Building Construction
tblSolidWaste	SolidWasteGenerationRate	6.20	0.00
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripNumber	4.00	44.00
tblTripsAndVMT	HaulingTripNumber	268.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	40.00
tblTripsAndVMT	WorkerTripNumber	8.00	40.00
tblTripsAndVMT	WorkerTripNumber	2.00	58.00
tblVehicleTrips	ST_TR	1.32	0.00

tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.08
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.8942	14.5170	12.6823	0.0226	0.5787	1.0165	1.4957	0.1444	0.9510	1.0766	0.0000	2,203.5561	2,203.5561	0.3181	0.0000	2,208.8275
2021	1.7326	13.5963	14.8443	0.0265	0.6483	0.9084	1.3876	0.1719	0.8492	0.9749	0.0000	2,572.3510	2,572.3510	0.5562	0.0000	2,586.2558
Maximum	**1.8942**	**14.5170**	**14.8443**	**0.0265**	**0.6483**	**1.0165**	**1.4957**	**0.1719**	**0.9510**	**1.0766**	**0.0000**	**2,572.3510**	**2,572.3510**	**0.5562**	**0.0000**	**2,586.2558**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.8942	14.5170	12.6823	0.0226	0.5276	1.0165	1.4879	0.1366	0.9510	1.0757	0.0000	2,203.5561	2,203.5561	0.3181	0.0000	2,208.8275
2021	1.7326	13.5963	14.8443	0.0265	0.6483	0.9084	1.3839	0.1719	0.8492	0.9739	0.0000	2,572.3510	2,572.3510	0.5562	0.0000	2,586.2558
Maximum	**1.8942**	**14.5170**	**14.8443**	**0.0265**	**0.6483**	**1.0165**	**1.4879**	**0.1719**	**0.9510**	**1.0757**	**0.0000**	**2,572.3510**	**2,572.3510**	**0.5562**	**0.0000**	**2,586.2558**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**4.17**	**0.00**	**0.40**	**2.45**	**0.00**	**0.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603
Total	**0.1153**	**0.0288**	**0.0335**	**1.9000e-004**	**3.7700e-003**	**1.8900e-003**	**5.6600e-003**	**1.0100e-003**	**1.8900e-003**	**2.8900e-003**		**33.7254**	**33.7254**	**8.0000e-004**	**5.3000e-004**	**33.9049**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603
Total	**0.1153**	**0.0288**	**0.0335**	**1.9000e-004**	**3.7700e-003**	**1.8900e-003**	**5.6600e-003**	**1.0100e-003**	**1.8900e-003**	**2.8900e-003**		**33.7254**	**33.7254**	**8.0000e-004**	**5.3000e-004**	**33.9049**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/2/2020	11/13/2020	5	10	
2	Site Preparation	Site Preparation	11/16/2020	2/5/2021	5	60	
3	Building Construction	Building Construction	2/8/2021	12/17/2021	5	225	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase 1 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Generator Sets	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Generator Sets	1	8.00	84	0.74
Site Preparation	Graders	1	8.00	84	0.74
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	40.00	0.00	44.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	40.00	3.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Building Construction	6	58.00	0.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0839	0.0000	0.0839	0.0127	0.0000	0.0127			0.0000			0.0000
Off-Road	1.0899	9.6030	9.4377	0.0159		0.5540	0.5540		0.5405	0.5405		1,514.3235	1,514.3235	0.1773		1,518.7565
Total	**1.0899**	**9.6030**	**9.4377**	**0.0159**	**0.0839**	**0.5540**	**0.6379**	**0.0127**	**0.5405**	**0.5532**		**1,514.3235**	**1,514.3235**	**0.1773**		**1,518.7565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0276	0.9491	0.2121	2.2700e-003	0.0477	2.6400e-003	0.0504	0.0131	2.5200e-003	0.0156		246.2645	246.2645	0.0196		246.7538
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2044	0.1450	1.6040	4.4500e-003	0.4471	3.7400e-003	0.4508	0.1186	3.4400e-003	0.1220		442.9682	442.9682	0.0140		443.3172
Total	**0.2320**	**1.0941**	**1.8161**	**6.7200e-003**	**0.4948**	**6.3800e-003**	**0.5012**	**0.1317**	**5.9600e-003**	**0.1376**		**689.2326**	**689.2326**	**0.0335**		**690.0710**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0327	0.0000	0.0327	4.9500e-003	0.0000	4.9500e-003			0.0000			0.0000
Off-Road	1.0899	9.6030	9.4377	0.0159		0.5540	0.5540		0.5405	0.5405	0.0000	1,514.3235	1,514.3235	0.1773		1,518.7565
Total	**1.0899**	**9.6030**	**9.4377**	**0.0159**	**0.0327**	**0.5540**	**0.5867**	**4.9500e-003**	**0.5405**	**0.5455**	**0.0000**	**1,514.3235**	**1,514.3235**	**0.1773**		**1,518.7565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0276	0.9491	0.2121	2.2700e-003	0.0477	2.6400e-003	0.0504	0.0131	2.5200e-003	0.0156		246.2645	246.2645	0.0196		246.7538
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2044	0.1450	1.6040	4.4500e-003	0.4471	3.7400e-003	0.4508	0.1186	3.4400e-003	0.1220		442.9682	442.9682	0.0140		443.3172
Total	**0.2320**	**1.0941**	**1.8161**	**6.7200e-003**	**0.4948**	**6.3800e-003**	**0.5012**	**0.1317**	**5.9600e-003**	**0.1376**		**689.2326**	**689.2326**	**0.0335**		**690.0710**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0129	0.0000	0.0129	1.5700e-003	0.0000	1.5700e-003			0.0000			0.0000
Off-Road	1.6786	14.0529	10.9860	0.0150		1.0113	1.0113		0.9461	0.9461		1,438.3443	1,438.3443	0.2988		1,445.8135
Total	**1.6786**	**14.0529**	**10.9860**	**0.0150**	**0.0129**	**1.0113**	**1.0241**	**1.5700e-003**	**0.9461**	**0.9476**		**1,438.3443**	**1,438.3443**	**0.2988**		**1,445.8135**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0112	0.3191	0.0922	7.6000e-004	0.0192	1.5300e-003	0.0207	5.5300e-003	1.4600e-003	6.9900e-003		80.8347	80.8347	5.4100e-003		80.9699
Worker	0.2044	0.1450	1.6040	4.4500e-003	0.4471	3.7400e-003	0.4508	0.1186	3.4400e-003	0.1220		442.9682	442.9682	0.0140		443.3172
Total	**0.2156**	**0.4640**	**1.6963**	**5.2100e-003**	**0.4663**	**5.2700e-003**	**0.4716**	**0.1241**	**4.9000e-003**	**0.1290**		**523.8029**	**523.8029**	**0.0194**		**524.2871**

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.0200e-003	0.0000	5.0200e-003	6.1000e-004	0.0000	6.1000e-004			0.0000			0.0000
Off-Road	1.6786	14.0529	10.9860	0.0150		1.0113	1.0113		0.9461	0.9461	0.0000	1,438.3443	1,438.3443	0.2988		1,445.8135
Total	**1.6786**	**14.0529**	**10.9860**	**0.0150**	**5.0200e-003**	**1.0113**	**1.0163**	**6.1000e-004**	**0.9461**	**0.9467**	**0.0000**	**1,438.3443**	**1,438.3443**	**0.2988**		**1,445.8135**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0112	0.3191	0.0922	7.6000e-004	0.0192	1.5300e-003	0.0207	5.5300e-003	1.4600e-003	6.9900e-003		80.8347	80.8347	5.4100e-003		80.9699
Worker	0.2044	0.1450	1.6040	4.4500e-003	0.4471	3.7400e-003	0.4508	0.1186	3.4400e-003	0.1220		442.9682	442.9682	0.0140		443.3172
Total	**0.2156**	**0.4640**	**1.6963**	**5.2100e-003**	**0.4663**	**5.2700e-003**	**0.4716**	**0.1241**	**4.9000e-003**	**0.1290**		**523.8029**	**523.8029**	**0.0194**		**524.2871**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0129	0.0000	0.0129	1.5700e-003	0.0000	1.5700e-003			0.0000			0.0000
Off-Road	1.5323	12.8736	10.8255	0.0150		0.9042	0.9042		0.8453	0.8453		1,438.1831	1,438.1831	0.2954		1,445.5688
Total	**1.5323**	**12.8736**	**10.8255**	**0.0150**	**0.0129**	**0.9042**	**0.9171**	**1.5700e-003**	**0.8453**	**0.8469**		**1,438.1831**	**1,438.1831**	**0.2954**		**1,445.5688**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.5700e-003	0.2907	0.0842	7.5000e-004	0.0192	6.1000e-004	0.0198	5.5300e-003	5.9000e-004	6.1200e-003		80.2037	80.2037	5.1800e-003		80.3331
Worker	0.1907	0.1305	1.4730	4.3000e-003	0.4471	3.6100e-003	0.4507	0.1186	3.3300e-003	0.1219		428.9004	428.9004	0.0126		429.2160
Total	**0.2003**	**0.4211**	**1.5573**	**5.0500e-003**	**0.4663**	**4.2200e-003**	**0.4705**	**0.1241**	**3.9200e-003**	**0.1280**		**509.1041**	**509.1041**	**0.0178**		**509.5491**

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.0200e-003	0.0000	5.0200e-003	6.1000e-004	0.0000	6.1000e-004			0.0000			0.0000
Off-Road	1.5323	12.8736	10.8255	0.0150		0.9042	0.9042		0.8453	0.8453	0.0000	1,438.1831	1,438.1831	0.2954		1,445.5688
Total	**1.5323**	**12.8736**	**10.8255**	**0.0150**	**5.0200e-003**	**0.9042**	**0.9092**	**6.1000e-004**	**0.8453**	**0.8459**	**0.0000**	**1,438.1831**	**1,438.1831**	**0.2954**		**1,445.5688**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.5700e-003	0.2907	0.0842	7.5000e-004	0.0192	6.1000e-004	0.0198	5.5300e-003	5.9000e-004	6.1200e-003		80.2037	80.2037	5.1800e-003		80.3331
Worker	0.1907	0.1305	1.4730	4.3000e-003	0.4471	3.6100e-003	0.4507	0.1186	3.3300e-003	0.1219		428.9004	428.9004	0.0126		429.2160
Total	**0.2003**	**0.4211**	**1.5573**	**5.0500e-003**	**0.4663**	**4.2200e-003**	**0.4705**	**0.1241**	**3.9200e-003**	**0.1280**		**509.1041**	**509.1041**	**0.0178**		**509.5491**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3580	13.4071	12.7084	0.0202		0.7303	0.7303		0.6812	0.6812		1,950.4454	1,950.4454	0.5379		1,963.8927
Total	**1.3580**	**13.4071**	**12.7084**	**0.0202**		**0.7303**	**0.7303**		**0.6812**	**0.6812**		**1,950.4454**	**1,950.4454**	**0.5379**		**1,963.8927**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2766	0.1892	2.1359	6.2400e-003	0.6483	5.2400e-003	0.6535	0.1719	4.8300e-003	0.1768		621.9056	621.9056	0.0183		622.3631
Total	**0.2766**	**0.1892**	**2.1359**	**6.2400e-003**	**0.6483**	**5.2400e-003**	**0.6535**	**0.1719**	**4.8300e-003**	**0.1768**		**621.9056**	**621.9056**	**0.0183**		**622.3631**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3580	13.4071	12.7084	0.0202		0.7303	0.7303		0.6812	0.6812	0.0000	1,950.4454	1,950.4454	0.5379		1,963.8927
Total	**1.3580**	**13.4071**	**12.7084**	**0.0202**		**0.7303**	**0.7303**		**0.6812**	**0.6812**	**0.0000**	**1,950.4454**	**1,950.4454**	**0.5379**		**1,963.8927**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2766	0.1892	2.1359	6.2400e-003	0.6483	5.2400e-003	0.6535	0.1719	4.8300e-003	0.1768		621.9056	621.9056	0.0183		622.3631
Total	**0.2766**	**0.1892**	**2.1359**	**6.2400e-003**	**0.6483**	**5.2400e-003**	**0.6535**	**0.1719**	**4.8300e-003**	**0.1768**		**621.9056**	**621.9056**	**0.0183**		**622.3631**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603
Unmitigated	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.40	0.00	0.00	1,265	1,265
Total	0.40	0.00	0.00	1,265	1,265

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
NaturalGas Unmitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	247.945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.247945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Unmitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Phase 1 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Phase 1 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use -

Construction Phase - From PD

Off-road Equipment - From PD. Other Construction Equipment is "barge".

Off-road Equipment - From PD

Off-road Equipment - From PD

Trips and VMT - From PD

Demolition - 28 cubic yards of concrete demolished

Grading - From PD

Vehicle Trips - 3 trips/week; 156 annual trips

Energy Use - Energy consumption of recirculation network is 120Mwh for Phase 1

Water And Wastewater - No water consumed on site

Solid Waste - No waste generated on site

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblEnergyUse	T24E	2.25	15.15
tblGrading	MaterialExported	0.00	1,045.00
tblGrading	MaterialImported	0.00	1,102.00
tblOffRoadEquipment	HorsePower	187.00	84.00
tblOffRoadEquipment	HorsePower	84.00	81.00
tblOffRoadEquipment	HorsePower	46.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.74
tblOffRoadEquipment	LoadFactor	0.74	0.73

tblOffRoadEquipment	LoadFactor	0.45	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblSolidWaste	SolidWasteGenerationRate	6.20	0.00
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripNumber	4.00	44.00
tblTripsAndVMT	HaulingTripNumber	268.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	40.00
tblTripsAndVMT	WorkerTripNumber	8.00	40.00
tblTripsAndVMT	WorkerTripNumber	2.00	58.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.08
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0192	0.1613	0.1622	3.0000e-004	7.5900e-003	8.9600e-003	0.0166	1.9200e-003	8.4700e-003	0.0104	0.0000	26.2915	26.2915	4.4100e-003	0.0000	26.4017
2021	0.0699	0.5917	0.6482	1.1600e-003	0.0277	0.0320	0.0596	7.3400e-003	0.0298	0.0372	0.0000	101.9199	101.9199	0.0220	0.0000	102.4689
Maximum	**0.0699**	**0.5917**	**0.6482**	**1.1600e-003**	**0.0277**	**0.0320**	**0.0596**	**7.3400e-003**	**0.0298**	**0.0372**	**0.0000**	**101.9199**	**101.9199**	**0.0220**	**0.0000**	**102.4689**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0192	0.1613	0.1622	3.0000e-004	7.1000e-003	8.9600e-003	0.0161	1.8500e-003	8.4700e-003	0.0103	0.0000	26.2915	26.2915	4.4100e-003	0.0000	26.4017
2021	0.0699	0.5917	0.6482	1.1600e-003	0.0277	0.0320	0.0596	7.3400e-003	0.0298	0.0372	0.0000	101.9198	101.9198	0.0220	0.0000	102.4688
Maximum	**0.0699**	**0.5917**	**0.6482**	**1.1600e-003**	**0.0277**	**0.0320**	**0.0596**	**7.3400e-003**	**0.0298**	**0.0372**	**0.0000**	**101.9198**	**101.9198**	**0.0220**	**0.0000**	**102.4688**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**1.39**	**0.00**	**0.64**	**0.76**	**0.00**	**0.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	11-30-2020	2-27-2021	0.4895	0.4895
2	2-28-2021	5-29-2021	0.3530	0.3530
		Highest	0.4895	0.4895

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	71.6648	71.6648	1.6700e-003	4.2000e-004	71.8303
Mobile	1.1000e-004	5.9000e-004	1.6600e-003	1.0000e-005	4.8000e-004	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5444	0.5444	3.0000e-005	0.0000	0.5451
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0210**	**5.0300e-003**	**5.4500e-003**	**4.0000e-005**	**4.8000e-004**	**3.5000e-004**	**8.3000e-004**	**1.3000e-004**	**3.4000e-004**	**4.7000e-004**	**0.0000**	**72.2093**	**72.2093**	**1.7000e-003**	**4.2000e-004**	**72.3755**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	71.6648	71.6648	1.6700e-003	4.2000e-004	71.8303
Mobile	1.1000e-004	5.9000e-004	1.6600e-003	1.0000e-005	4.8000e-004	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5444	0.5444	3.0000e-005	0.0000	0.5451
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0210**	**5.0300e-003**	**5.4500e-003**	**4.0000e-005**	**4.8000e-004**	**3.5000e-004**	**8.3000e-004**	**1.3000e-004**	**3.4000e-004**	**4.7000e-004**	**0.0000**	**72.2093**	**72.2093**	**1.7000e-003**	**4.2000e-004**	**72.3755**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/30/2020	12/11/2020	5	10	
2	Site Preparation	Site Preparation	12/12/2020	12/14/2020	5	1	
3	Building Construction	Building Construction	12/15/2020	5/3/2021	5	100	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Generator Sets	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Generator Sets	1	8.00	84	0.74
Site Preparation	Graders	1	8.00	84	0.74
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	40.00	0.00	44.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	40.00	3.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Building Construction	6	58.00	0.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4500e-003	0.0480	0.0472	8.0000e-005		2.7700e-003	2.7700e-003		2.7000e-003	2.7000e-003	0.0000	6.8689	6.8689	8.0000e-004	0.0000	6.8890
Total	**5.4500e-003**	**0.0480**	**0.0472**	**8.0000e-005**	**4.2000e-004**	**2.7700e-003**	**3.1900e-003**	**6.0000e-005**	**2.7000e-003**	**2.7600e-003**	**0.0000**	**6.8689**	**6.8689**	**8.0000e-004**	**0.0000**	**6.8890**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	4.8400e-003	1.0100e-003	1.0000e-005	2.3000e-004	1.0000e-005	2.5000e-004	6.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.1341	1.1341	9.0000e-005	0.0000	1.1363
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	7.4000e-004	8.2300e-003	2.0000e-005	2.1900e-003	2.0000e-005	2.2100e-003	5.8000e-004	2.0000e-005	6.0000e-004	0.0000	2.0427	2.0427	6.0000e-005	0.0000	2.0443
Total	**1.0600e-003**	**5.5800e-003**	**9.2400e-003**	**3.0000e-005**	**2.4200e-003**	**3.0000e-005**	**2.4600e-003**	**6.4000e-004**	**3.0000e-005**	**6.8000e-004**	**0.0000**	**3.1768**	**3.1768**	**1.5000e-004**	**0.0000**	**3.1806**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6000e-004	0.0000	1.6000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4500e-003	0.0480	0.0472	8.0000e-005		2.7700e-003	2.7700e-003		2.7000e-003	2.7000e-003	0.0000	6.8689	6.8689	8.0000e-004	0.0000	6.8890
Total	**5.4500e-003**	**0.0480**	**0.0472**	**8.0000e-005**	**1.6000e-004**	**2.7700e-003**	**2.9300e-003**	**2.0000e-005**	**2.7000e-003**	**2.7200e-003**	**0.0000**	**6.8689**	**6.8689**	**8.0000e-004**	**0.0000**	**6.8890**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	4.8400e-003	1.0100e-003	1.0000e-005	2.3000e-004	1.0000e-005	2.5000e-004	6.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.1341	1.1341	9.0000e-005	0.0000	1.1363
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	7.4000e-004	8.2300e-003	2.0000e-005	2.1900e-003	2.0000e-005	2.2100e-003	5.8000e-004	2.0000e-005	6.0000e-004	0.0000	2.0427	2.0427	6.0000e-005	0.0000	2.0443
Total	**1.0600e-003**	**5.5800e-003**	**9.2400e-003**	**3.0000e-005**	**2.4200e-003**	**3.0000e-005**	**2.4600e-003**	**6.4000e-004**	**3.0000e-005**	**6.8000e-004**	**0.0000**	**3.1768**	**3.1768**	**1.5000e-004**	**0.0000**	**3.1806**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9000e-004	0.0000	3.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4000e-004	7.0300e-003	5.4900e-003	1.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	0.6524	0.6524	1.4000e-004	0.0000	0.6558
Total	**8.4000e-004**	**7.0300e-003**	**5.4900e-003**	**1.0000e-005**	**3.9000e-004**	**5.1000e-004**	**9.0000e-004**	**5.0000e-005**	**4.7000e-004**	**5.2000e-004**	**0.0000**	**0.6524**	**0.6524**	**1.4000e-004**	**0.0000**	**0.6558**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	1.6000e-004	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0373	0.0373	0.0000	0.0000	0.0373
Worker	9.0000e-005	7.0000e-005	8.2000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2043	0.2043	1.0000e-005	0.0000	0.2044
Total	**1.0000e-004**	**2.3000e-004**	**8.6000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2415**	**0.2415**	**1.0000e-005**	**0.0000**	**0.2418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.5000e-004	0.0000	1.5000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4000e-004	7.0300e-003	5.4900e-003	1.0000e-005		5.1000e-004	5.1000e-004		4.7000e-004	4.7000e-004	0.0000	0.6524	0.6524	1.4000e-004	0.0000	0.6558
Total	**8.4000e-004**	**7.0300e-003**	**5.4900e-003**	**1.0000e-005**	**1.5000e-004**	**5.1000e-004**	**6.6000e-004**	**2.0000e-005**	**4.7000e-004**	**4.9000e-004**	**0.0000**	**0.6524**	**0.6524**	**1.4000e-004**	**0.0000**	**0.6558**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	1.6000e-004	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0373	0.0373	0.0000	0.0000	0.0373
Worker	9.0000e-005	7.0000e-005	8.2000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2043	0.2043	1.0000e-005	0.0000	0.2044
Total	**1.0000e-004**	**2.3000e-004**	**8.6000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2415**	**0.2415**	**1.0000e-005**	**0.0000**	**0.2418**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.9800e-003	0.0991	0.0839	1.3000e-004		5.6100e-003	5.6100e-003		5.2300e-003	5.2300e-003	0.0000	11.5014	11.5014	3.1900e-003	0.0000	11.5811
Total	**9.9800e-003**	**0.0991**	**0.0839**	**1.3000e-004**		**5.6100e-003**	**5.6100e-003**		**5.2300e-003**	**5.2300e-003**	**0.0000**	**11.5014**	**11.5014**	**3.1900e-003**	**0.0000**	**11.5811**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7400e-003	1.4000e-003	0.0155	4.0000e-005	4.1300e-003	4.0000e-005	4.1700e-003	1.1000e-003	3.0000e-005	1.1300e-003	0.0000	3.8505	3.8505	1.2000e-004	0.0000	3.8535
Total	**1.7400e-003**	**1.4000e-003**	**0.0155**	**4.0000e-005**	**4.1300e-003**	**4.0000e-005**	**4.1700e-003**	**1.1000e-003**	**3.0000e-005**	**1.1300e-003**	**0.0000**	**3.8505**	**3.8505**	**1.2000e-004**	**0.0000**	**3.8535**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.9800e-003	0.0991	0.0839	1.3000e-004		5.6100e-003	5.6100e-003		5.2300e-003	5.2300e-003	0.0000	11.5014	11.5014	3.1900e-003	0.0000	11.5811
Total	**9.9800e-003**	**0.0991**	**0.0839**	**1.3000e-004**		**5.6100e-003**	**5.6100e-003**		**5.2300e-003**	**5.2300e-003**	**0.0000**	**11.5014**	**11.5014**	**3.1900e-003**	**0.0000**	**11.5811**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7400e-003	1.4000e-003	0.0155	4.0000e-005	4.1300e-003	4.0000e-005	4.1700e-003	1.1000e-003	3.0000e-005	1.1300e-003	0.0000	3.8505	3.8505	1.2000e-004	0.0000	3.8535
Total	**1.7400e-003**	**1.4000e-003**	**0.0155**	**4.0000e-005**	**4.1300e-003**	**4.0000e-005**	**4.1700e-003**	**1.1000e-003**	**3.0000e-005**	**1.1300e-003**	**0.0000**	**3.8505**	**3.8505**	**1.2000e-004**	**0.0000**	**3.8535**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0591	0.5832	0.5528	8.8000e-004		0.0318	0.0318		0.0296	0.0296	0.0000	76.9695	76.9695	0.0212	0.0000	77.5002
Total	**0.0591**	**0.5832**	**0.5528**	**8.8000e-004**		**0.0318**	**0.0318**		**0.0296**	**0.0296**	**0.0000**	**76.9695**	**76.9695**	**0.0212**	**0.0000**	**77.5002**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0109	8.4500e-003	0.0954	2.8000e-004	0.0277	2.3000e-004	0.0279	7.3400e-003	2.1000e-004	7.5500e-003	0.0000	24.9504	24.9504	7.3000e-004	0.0000	24.9687
Total	**0.0109**	**8.4500e-003**	**0.0954**	**2.8000e-004**	**0.0277**	**2.3000e-004**	**0.0279**	**7.3400e-003**	**2.1000e-004**	**7.5500e-003**	**0.0000**	**24.9504**	**24.9504**	**7.3000e-004**	**0.0000**	**24.9687**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0591	0.5832	0.5528	8.8000e-004		0.0318	0.0318		0.0296	0.0296	0.0000	76.9694	76.9694	0.0212	0.0000	77.5001
Total	**0.0591**	**0.5832**	**0.5528**	**8.8000e-004**		**0.0318**	**0.0318**		**0.0296**	**0.0296**	**0.0000**	**76.9694**	**76.9694**	**0.0212**	**0.0000**	**77.5001**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0109	8.4500e-003	0.0954	2.8000e-004	0.0277	2.3000e-004	0.0279	7.3400e-003	2.1000e-004	7.5500e-003	0.0000	24.9504	24.9504	7.3000e-004	0.0000	24.9687
Total	**0.0109**	**8.4500e-003**	**0.0954**	**2.8000e-004**	**0.0277**	**2.3000e-004**	**0.0279**	**7.3400e-003**	**2.1000e-004**	**7.5500e-003**	**0.0000**	**24.9504**	**24.9504**	**7.3000e-004**	**0.0000**	**24.9687**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1000e-004	5.9000e-004	1.6600e-003	1.0000e-005	4.8000e-004	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5444	0.5444	3.0000e-005	0.0000	0.5451
Unmitigated	1.1000e-004	5.9000e-004	1.6600e-003	1.0000e-005	4.8000e-004	1.0000e-005	4.9000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5444	0.5444	3.0000e-005	0.0000	0.5451

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.40	0.00	0.00	1,265	1,265
Total	0.40	0.00	0.00	1,265	1,265

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	66.8354	66.8354	1.5800e-003	3.3000e-004	66.9722
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	66.8354	66.8354	1.5800e-003	3.3000e-004	66.9722
NaturalGas Mitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
NaturalGas Unmitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	90500	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
Total		**4.9000e-004**	**4.4400e-003**	**3.7300e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8294**	**4.8294**	**9.0000e-005**	**9.0000e-005**	**4.8581**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	90500	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
Total		**4.9000e-004**	**4.4400e-003**	**3.7300e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8294**	**4.8294**	**9.0000e-005**	**9.0000e-005**	**4.8581**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	120000	66.8354	1.5800e-003	3.3000e-004	66.9722
Total		**66.8354**	**1.5800e-003**	**3.3000e-004**	**66.9722**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	120000	66.8354	1.5800e-003	3.3000e-004	66.9722
Total		**66.8354**	**1.5800e-003**	**3.3000e-004**	**66.9722**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Unmitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Phase 2 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2023
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Phase 2 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use -

Construction Phase - From PD

Off-road Equipment - From PD. Other Construction Equipment is "barge".

Off-road Equipment - From PD

Off-road Equipment - From PD

Trips and VMT - From PD

Demolition - 27 cubic yards of concrete demolished

Grading - From PD

Vehicle Trips - 3 trips/week; 156 annual trips

Energy Use - Project produces 96.58 MWh annually during Phase 2

Water And Wastewater - No water usage on site

Solid Waste - No solid waste generated on site

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblEnergyUse	T24E	2.25	10.47
tblFleetMix	HHD	0.03	0.03
tblFleetMix	LDA	0.55	0.55
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.21	0.20
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	6.2270e-003	6.1430e-003
tblFleetMix	MCY	5.1840e-003	5.0780e-003

tblFleetMix	MDV	0.12	0.12
tblFleetMix	MH	8.6200e-004	8.9100e-004
tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	2.5460e-003	2.4790e-003
tblFleetMix	SBUS	6.9200e-004	6.8200e-004
tblFleetMix	UBUS	2.1330e-003	2.2700e-003
tblGrading	MaterialExported	0.00	64.00
tblGrading	MaterialImported	0.00	167.00
tblOffRoadEquipment	HorsePower	187.00	84.00
tblOffRoadEquipment	HorsePower	84.00	81.00
tblOffRoadEquipment	HorsePower	46.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.74
tblOffRoadEquipment	LoadFactor	0.74	0.73
tblOffRoadEquipment	LoadFactor	0.45	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblSolidWaste	SolidWasteGenerationRate	6.20	0.00
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripNumber	4.00	14.00
tblTripsAndVMT	HaulingTripNumber	29.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	2.00	44.00

tblVehicleEF	HHD	0.48	0.65
tblVehicleEF	HHD	0.09	0.09
tblVehicleEF	HHD	0.07	0.09
tblVehicleEF	HHD	1.63	2.61
tblVehicleEF	HHD	1.06	1.16
tblVehicleEF	HHD	3.33	3.36
tblVehicleEF	HHD	4,465.78	4,729.35
tblVehicleEF	HHD	1,572.96	1,660.44
tblVehicleEF	HHD	10.75	10.55
tblVehicleEF	HHD	14.30	21.63
tblVehicleEF	HHD	2.12	4.20
tblVehicleEF	HHD	19.50	19.57
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	6.2960e-003	0.02
tblVehicleEF	HHD	9.1000e-005	8.8000e-005
tblVehicleEF	HHD	9.6000e-003	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8400e-003	8.8360e-003
tblVehicleEF	HHD	6.0240e-003	0.02
tblVehicleEF	HHD	8.3000e-005	8.1000e-005
tblVehicleEF	HHD	1.0300e-004	1.1100e-004
tblVehicleEF	HHD	4.5010e-003	4.8720e-003
tblVehicleEF	HHD	0.41	0.65
tblVehicleEF	HHD	7.8000e-005	8.3000e-005
tblVehicleEF	HHD	0.09	0.15

tblVehicleEF	HHD	3.7200e-004	4.3200e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	1.6200e-004	1.6100e-004
tblVehicleEF	HHD	1.0300e-004	1.1100e-004
tblVehicleEF	HHD	4.5010e-003	4.8720e-003
tblVehicleEF	HHD	0.49	0.76
tblVehicleEF	HHD	7.8000e-005	8.3000e-005
tblVehicleEF	HHD	0.20	0.26
tblVehicleEF	HHD	3.7200e-004	4.3200e-004
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	HHD	0.45	0.61
tblVehicleEF	HHD	0.09	0.09
tblVehicleEF	HHD	0.07	0.08
tblVehicleEF	HHD	1.19	1.90
tblVehicleEF	HHD	1.07	1.17
tblVehicleEF	HHD	3.16	3.19
tblVehicleEF	HHD	4,731.10	5,008.69
tblVehicleEF	HHD	1,572.96	1,660.44
tblVehicleEF	HHD	10.75	10.55
tblVehicleEF	HHD	14.76	22.32
tblVehicleEF	HHD	2.01	3.97
tblVehicleEF	HHD	19.49	19.56
tblVehicleEF	HHD	8.4600e-003	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04

tblVehicleEF	HHD	6.2960e-003	0.02
tblVehicleEF	HHD	9.1000e-005	8.8000e-005
tblVehicleEF	HHD	8.0940e-003	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8400e-003	8.8360e-003
tblVehicleEF	HHD	6.0240e-003	0.02
tblVehicleEF	HHD	8.3000e-005	8.1000e-005
tblVehicleEF	HHD	1.5600e-004	1.7000e-004
tblVehicleEF	HHD	4.6140e-003	4.9980e-003
tblVehicleEF	HHD	0.39	0.61
tblVehicleEF	HHD	1.1200e-004	1.2100e-004
tblVehicleEF	HHD	0.09	0.15
tblVehicleEF	HHD	3.6000e-004	4.2100e-004
tblVehicleEF	HHD	0.07	0.08
tblVehicleEF	HHD	0.04	0.05
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	1.5900e-004	1.5800e-004
tblVehicleEF	HHD	1.5600e-004	1.7000e-004
tblVehicleEF	HHD	4.6140e-003	4.9980e-003
tblVehicleEF	HHD	0.46	0.72
tblVehicleEF	HHD	1.1200e-004	1.2100e-004
tblVehicleEF	HHD	0.20	0.26
tblVehicleEF	HHD	3.6000e-004	4.2100e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.52	0.70
tblVehicleEF	HHD	0.09	0.09
tblVehicleEF	HHD	0.07	0.09

tblVehicleEF	HHD	2.25	3.58
tblVehicleEF	HHD	1.06	1.16
tblVehicleEF	HHD	3.36	3.39
tblVehicleEF	HHD	4,099.40	4,343.58
tblVehicleEF	HHD	1,572.96	1,660.44
tblVehicleEF	HHD	10.75	10.55
tblVehicleEF	HHD	13.67	20.67
tblVehicleEF	HHD	2.09	4.13
tblVehicleEF	HHD	19.50	19.57
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	6.2960e-003	0.02
tblVehicleEF	HHD	9.1000e-005	8.8000e-005
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8400e-003	8.8360e-003
tblVehicleEF	HHD	6.0240e-003	0.02
tblVehicleEF	HHD	8.3000e-005	8.1000e-005
tblVehicleEF	HHD	1.0000e-004	1.1000e-004
tblVehicleEF	HHD	4.7840e-003	5.2380e-003
tblVehicleEF	HHD	0.45	0.70
tblVehicleEF	HHD	7.6000e-005	8.1000e-005
tblVehicleEF	HHD	0.09	0.15
tblVehicleEF	HHD	4.0500e-004	4.6800e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.04	0.04

tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	1.6300e-004	1.6100e-004
tblVehicleEF	HHD	1.0000e-004	1.1000e-004
tblVehicleEF	HHD	4.7840e-003	5.2380e-003
tblVehicleEF	HHD	0.53	0.82
tblVehicleEF	HHD	7.6000e-005	8.1000e-005
tblVehicleEF	HHD	0.20	0.26
tblVehicleEF	HHD	4.0500e-004	4.6800e-004
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	LDA	4.8310e-003	5.9160e-003
tblVehicleEF	LDA	4.7360e-003	6.1880e-003
tblVehicleEF	LDA	0.61	0.71
tblVehicleEF	LDA	1.04	1.27
tblVehicleEF	LDA	263.16	285.63
tblVehicleEF	LDA	54.94	59.19
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.06	0.08
tblVehicleEF	LDA	2.1170e-003	2.2290e-003
tblVehicleEF	LDA	2.2400e-003	2.3010e-003
tblVehicleEF	LDA	1.9520e-003	2.0560e-003
tblVehicleEF	LDA	2.0590e-003	2.1160e-003
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.06	0.08

tblVehicleEF	LDA	2.6360e-003	2.8620e-003
tblVehicleEF	LDA	5.6700e-004	6.1400e-004
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	5.1340e-003	6.2800e-003
tblVehicleEF	LDA	4.2110e-003	5.4950e-003
tblVehicleEF	LDA	0.67	0.78
tblVehicleEF	LDA	0.89	1.09
tblVehicleEF	LDA	275.40	298.94
tblVehicleEF	LDA	54.94	59.19
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	2.1170e-003	2.2290e-003
tblVehicleEF	LDA	2.2400e-003	2.3010e-003
tblVehicleEF	LDA	1.9520e-003	2.0560e-003
tblVehicleEF	LDA	2.0590e-003	2.1160e-003
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	2.7590e-003	2.9960e-003

tblVehicleEF	LDA	5.6400e-004	6.1000e-004
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.10	0.11
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.06	0.08
tblVehicleEF	LDA	4.7330e-003	5.7950e-003
tblVehicleEF	LDA	4.8460e-003	6.3340e-003
tblVehicleEF	LDA	0.59	0.68
tblVehicleEF	LDA	1.08	1.31
tblVehicleEF	LDA	258.68	280.76
tblVehicleEF	LDA	54.94	59.19
tblVehicleEF	LDA	0.05	0.06
tblVehicleEF	LDA	0.06	0.08
tblVehicleEF	LDA	2.1170e-003	2.2290e-003
tblVehicleEF	LDA	2.2400e-003	2.3010e-003
tblVehicleEF	LDA	1.9520e-003	2.0560e-003
tblVehicleEF	LDA	2.0590e-003	2.1160e-003
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDA	2.5910e-003	2.8130e-003
tblVehicleEF	LDA	5.6700e-004	6.1400e-004

tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.07	0.09
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.52	1.84
tblVehicleEF	LDT1	2.49	3.09
tblVehicleEF	LDT1	330.49	351.43
tblVehicleEF	LDT1	67.47	71.32
tblVehicleEF	LDT1	0.14	0.17
tblVehicleEF	LDT1	0.14	0.18
tblVehicleEF	LDT1	3.3520e-003	3.7390e-003
tblVehicleEF	LDT1	3.2790e-003	3.5990e-003
tblVehicleEF	LDT1	3.0870e-003	3.4440e-003
tblVehicleEF	LDT1	3.0150e-003	3.3100e-003
tblVehicleEF	LDT1	0.12	0.14
tblVehicleEF	LDT1	0.25	0.28
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.17	0.21
tblVehicleEF	LDT1	3.3240e-003	3.5380e-003
tblVehicleEF	LDT1	7.1800e-004	7.6700e-004
tblVehicleEF	LDT1	0.12	0.14

tblVehicleEF	LDT1	0.25	0.28
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.18	0.24
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	1.65	1.99
tblVehicleEF	LDT1	2.11	2.62
tblVehicleEF	LDT1	344.92	366.73
tblVehicleEF	LDT1	67.47	71.32
tblVehicleEF	LDT1	0.12	0.15
tblVehicleEF	LDT1	0.13	0.16
tblVehicleEF	LDT1	3.3520e-003	3.7390e-003
tblVehicleEF	LDT1	3.2790e-003	3.5990e-003
tblVehicleEF	LDT1	3.0870e-003	3.4440e-003
tblVehicleEF	LDT1	3.0150e-003	3.3100e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.26	0.30
tblVehicleEF	LDT1	0.14	0.16
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.15	0.17
tblVehicleEF	LDT1	0.15	0.19
tblVehicleEF	LDT1	3.4700e-003	3.6940e-003
tblVehicleEF	LDT1	7.1200e-004	7.5900e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.26	0.30

tblVehicleEF	LDT1	0.14	0.16
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.15	0.17
tblVehicleEF	LDT1	0.16	0.21
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	1.47	1.79
tblVehicleEF	LDT1	2.57	3.19
tblVehicleEF	LDT1	325.20	345.81
tblVehicleEF	LDT1	67.47	71.32
tblVehicleEF	LDT1	0.14	0.17
tblVehicleEF	LDT1	0.15	0.18
tblVehicleEF	LDT1	3.3520e-003	3.7390e-003
tblVehicleEF	LDT1	3.2790e-003	3.5990e-003
tblVehicleEF	LDT1	3.0870e-003	3.4440e-003
tblVehicleEF	LDT1	3.0150e-003	3.3100e-003
tblVehicleEF	LDT1	0.12	0.14
tblVehicleEF	LDT1	0.28	0.32
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.17	0.22
tblVehicleEF	LDT1	3.2700e-003	3.4810e-003
tblVehicleEF	LDT1	7.1900e-004	7.6900e-004
tblVehicleEF	LDT1	0.12	0.14
tblVehicleEF	LDT1	0.28	0.32
tblVehicleEF	LDT1	0.10	0.11

tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.19	0.24
tblVehicleEF	LDT2	6.6130e-003	7.8740e-003
tblVehicleEF	LDT2	5.6850e-003	7.2440e-003
tblVehicleEF	LDT2	0.79	0.90
tblVehicleEF	LDT2	1.23	1.49
tblVehicleEF	LDT2	368.32	395.42
tblVehicleEF	LDT2	75.43	80.68
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.09	0.12
tblVehicleEF	LDT2	2.1490e-003	2.1620e-003
tblVehicleEF	LDT2	2.3760e-003	2.3490e-003
tblVehicleEF	LDT2	1.9770e-003	1.9880e-003
tblVehicleEF	LDT2	2.1840e-003	2.1600e-003
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.08	0.10
tblVehicleEF	LDT2	3.6890e-003	3.9620e-003
tblVehicleEF	LDT2	7.7500e-004	8.3200e-004
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.02	0.03

tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.08	0.11
tblVehicleEF	LDT2	7.0150e-003	8.3450e-003
tblVehicleEF	LDT2	5.0630e-003	6.4440e-003
tblVehicleEF	LDT2	0.87	0.99
tblVehicleEF	LDT2	1.06	1.27
tblVehicleEF	LDT2	384.82	413.17
tblVehicleEF	LDT2	75.43	80.68
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	2.1490e-003	2.1620e-003
tblVehicleEF	LDT2	2.3760e-003	2.3490e-003
tblVehicleEF	LDT2	1.9770e-003	1.9880e-003
tblVehicleEF	LDT2	2.1840e-003	2.1600e-003
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.06
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	3.8550e-003	4.1400e-003
tblVehicleEF	LDT2	7.7200e-004	8.2800e-004
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.06	0.06

tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	6.4820e-003	7.7190e-003
tblVehicleEF	LDT2	5.8190e-003	7.4150e-003
tblVehicleEF	LDT2	0.76	0.87
tblVehicleEF	LDT2	1.27	1.54
tblVehicleEF	LDT2	362.26	388.90
tblVehicleEF	LDT2	75.43	80.68
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.09	0.12
tblVehicleEF	LDT2	2.1490e-003	2.1620e-003
tblVehicleEF	LDT2	2.3760e-003	2.3490e-003
tblVehicleEF	LDT2	1.9770e-003	1.9880e-003
tblVehicleEF	LDT2	2.1840e-003	2.1600e-003
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.08	0.10
tblVehicleEF	LDT2	3.6280e-003	3.8960e-003
tblVehicleEF	LDT2	7.7500e-004	8.3300e-004
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.09	0.11

tblVehicleEF	LHD1	5.2860e-003	6.0120e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.16
tblVehicleEF	LHD1	0.75	0.94
tblVehicleEF	LHD1	2.58	3.04
tblVehicleEF	LHD1	8.94	8.91
tblVehicleEF	LHD1	595.21	612.93
tblVehicleEF	LHD1	32.17	34.52
tblVehicleEF	LHD1	0.07	0.07
tblVehicleEF	LHD1	0.86	1.05
tblVehicleEF	LHD1	0.95	1.07
tblVehicleEF	LHD1	8.3300e-004	8.1600e-004
tblVehicleEF	LHD1	0.01	9.9780e-003
tblVehicleEF	LHD1	8.8370e-003	9.4020e-003
tblVehicleEF	LHD1	9.4800e-004	1.0850e-003
tblVehicleEF	LHD1	7.9700e-004	7.8100e-004
tblVehicleEF	LHD1	2.5350e-003	2.4950e-003
tblVehicleEF	LHD1	8.4300e-003	8.9670e-003
tblVehicleEF	LHD1	8.7200e-004	9.9800e-004
tblVehicleEF	LHD1	2.9730e-003	3.3130e-003
tblVehicleEF	LHD1	0.10	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8290e-003	1.9910e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.30	0.32
tblVehicleEF	LHD1	0.24	0.29

tblVehicleEF	LHD1	5.8400e-003	6.0260e-003
tblVehicleEF	LHD1	3.7000e-004	4.0200e-004
tblVehicleEF	LHD1	2.9730e-003	3.3130e-003
tblVehicleEF	LHD1	0.10	0.11
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8290e-003	1.9910e-003
tblVehicleEF	LHD1	0.07	0.09
tblVehicleEF	LHD1	0.30	0.32
tblVehicleEF	LHD1	0.27	0.32
tblVehicleEF	LHD1	5.2860e-003	6.0120e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.16
tblVehicleEF	LHD1	0.76	0.96
tblVehicleEF	LHD1	2.46	2.90
tblVehicleEF	LHD1	8.94	8.91
tblVehicleEF	LHD1	595.21	612.93
tblVehicleEF	LHD1	32.17	34.52
tblVehicleEF	LHD1	0.07	0.07
tblVehicleEF	LHD1	0.81	0.98
tblVehicleEF	LHD1	0.91	1.03
tblVehicleEF	LHD1	8.3300e-004	8.1600e-004
tblVehicleEF	LHD1	0.01	9.9780e-003
tblVehicleEF	LHD1	8.8370e-003	9.4020e-003
tblVehicleEF	LHD1	9.4800e-004	1.0850e-003
tblVehicleEF	LHD1	7.9700e-004	7.8100e-004
tblVehicleEF	LHD1	2.5350e-003	2.4950e-003

tblVehicleEF	LHD1	8.4300e-003	8.9670e-003
tblVehicleEF	LHD1	8.7200e-004	9.9800e-004
tblVehicleEF	LHD1	4.4450e-003	4.9680e-003
tblVehicleEF	LHD1	0.10	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.5600e-003	2.8120e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.29	0.31
tblVehicleEF	LHD1	0.23	0.28
tblVehicleEF	LHD1	5.8400e-003	6.0270e-003
tblVehicleEF	LHD1	3.6700e-004	3.9900e-004
tblVehicleEF	LHD1	4.4450e-003	4.9680e-003
tblVehicleEF	LHD1	0.10	0.11
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.5600e-003	2.8120e-003
tblVehicleEF	LHD1	0.08	0.09
tblVehicleEF	LHD1	0.29	0.31
tblVehicleEF	LHD1	0.26	0.31
tblVehicleEF	LHD1	5.2860e-003	6.0120e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.16
tblVehicleEF	LHD1	0.74	0.94
tblVehicleEF	LHD1	2.59	3.06
tblVehicleEF	LHD1	8.94	8.91
tblVehicleEF	LHD1	595.21	612.93
tblVehicleEF	LHD1	32.17	34.52

tblVehicleEF	LHD1	0.07	0.07
tblVehicleEF	LHD1	0.85	1.03
tblVehicleEF	LHD1	0.95	1.08
tblVehicleEF	LHD1	8.3300e-004	8.1600e-004
tblVehicleEF	LHD1	0.01	9.9780e-003
tblVehicleEF	LHD1	8.8370e-003	9.4020e-003
tblVehicleEF	LHD1	9.4800e-004	1.0850e-003
tblVehicleEF	LHD1	7.9700e-004	7.8100e-004
tblVehicleEF	LHD1	2.5350e-003	2.4950e-003
tblVehicleEF	LHD1	8.4300e-003	8.9670e-003
tblVehicleEF	LHD1	8.7200e-004	9.9800e-004
tblVehicleEF	LHD1	3.1110e-003	3.5020e-003
tblVehicleEF	LHD1	0.11	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7990e-003	1.9650e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.32	0.34
tblVehicleEF	LHD1	0.25	0.30
tblVehicleEF	LHD1	5.8400e-003	6.0260e-003
tblVehicleEF	LHD1	3.7000e-004	4.0200e-004
tblVehicleEF	LHD1	3.1110e-003	3.5020e-003
tblVehicleEF	LHD1	0.11	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7990e-003	1.9650e-003
tblVehicleEF	LHD1	0.07	0.09
tblVehicleEF	LHD1	0.32	0.34
tblVehicleEF	LHD1	0.27	0.32

tblVehicleEF	LHD2	3.7460e-003	4.3410e-003
tblVehicleEF	LHD2	3.7700e-003	5.0230e-003
tblVehicleEF	LHD2	7.4580e-003	9.9030e-003
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.31	0.39
tblVehicleEF	LHD2	1.26	1.51
tblVehicleEF	LHD2	13.57	13.55
tblVehicleEF	LHD2	610.80	625.73
tblVehicleEF	LHD2	26.97	28.89
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.55	0.76
tblVehicleEF	LHD2	0.50	0.61
tblVehicleEF	LHD2	1.1440e-003	1.1760e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	8.4330e-003	9.3050e-003
tblVehicleEF	LHD2	4.4100e-004	5.0600e-004
tblVehicleEF	LHD2	1.0950e-003	1.1250e-003
tblVehicleEF	LHD2	2.6630e-003	2.6430e-003
tblVehicleEF	LHD2	8.0540e-003	8.8870e-003
tblVehicleEF	LHD2	4.0500e-004	4.6500e-004
tblVehicleEF	LHD2	1.0290e-003	1.2670e-003
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.8900e-004	8.0900e-004
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.07	0.10
tblVehicleEF	LHD2	0.10	0.13

tblVehicleEF	LHD2	5.9490e-003	6.1010e-003
tblVehicleEF	LHD2	2.9200e-004	3.1600e-004
tblVehicleEF	LHD2	1.0290e-003	1.2670e-003
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.8900e-004	8.0900e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.10
tblVehicleEF	LHD2	0.11	0.15
tblVehicleEF	LHD2	3.7460e-003	4.3410e-003
tblVehicleEF	LHD2	3.8180e-003	5.0980e-003
tblVehicleEF	LHD2	7.2080e-003	9.5540e-003
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.31	0.40
tblVehicleEF	LHD2	1.20	1.44
tblVehicleEF	LHD2	13.57	13.55
tblVehicleEF	LHD2	610.80	625.73
tblVehicleEF	LHD2	26.97	28.89
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.52	0.72
tblVehicleEF	LHD2	0.49	0.58
tblVehicleEF	LHD2	1.1440e-003	1.1760e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	8.4330e-003	9.3050e-003
tblVehicleEF	LHD2	4.4100e-004	5.0600e-004
tblVehicleEF	LHD2	1.0950e-003	1.1250e-003
tblVehicleEF	LHD2	2.6630e-003	2.6430e-003

tblVehicleEF	LHD2	8.0540e-003	8.8870e-003
tblVehicleEF	LHD2	4.0500e-004	4.6500e-004
tblVehicleEF	LHD2	1.5320e-003	1.8880e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	9.5700e-004	1.1340e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.13
tblVehicleEF	LHD2	5.9490e-003	6.1010e-003
tblVehicleEF	LHD2	2.9100e-004	3.1500e-004
tblVehicleEF	LHD2	1.5320e-003	1.8880e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	9.5700e-004	1.1340e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.11	0.14
tblVehicleEF	LHD2	3.7460e-003	4.3410e-003
tblVehicleEF	LHD2	3.7580e-003	5.0030e-003
tblVehicleEF	LHD2	7.5080e-003	9.9730e-003
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.31	0.39
tblVehicleEF	LHD2	1.27	1.52
tblVehicleEF	LHD2	13.57	13.55
tblVehicleEF	LHD2	610.80	625.73
tblVehicleEF	LHD2	26.97	28.89

tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.54	0.75
tblVehicleEF	LHD2	0.51	0.61
tblVehicleEF	LHD2	1.1440e-003	1.1760e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	8.4330e-003	9.3050e-003
tblVehicleEF	LHD2	4.4100e-004	5.0600e-004
tblVehicleEF	LHD2	1.0950e-003	1.1250e-003
tblVehicleEF	LHD2	2.6630e-003	2.6430e-003
tblVehicleEF	LHD2	8.0540e-003	8.8870e-003
tblVehicleEF	LHD2	4.0500e-004	4.6500e-004
tblVehicleEF	LHD2	1.0410e-003	1.3050e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.6600e-004	7.8800e-004
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.08	0.10
tblVehicleEF	LHD2	0.10	0.13
tblVehicleEF	LHD2	5.9490e-003	6.1010e-003
tblVehicleEF	LHD2	2.9200e-004	3.1700e-004
tblVehicleEF	LHD2	1.0410e-003	1.3050e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6600e-004	7.8800e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.10
tblVehicleEF	LHD2	0.11	0.15

tblVehicleEF	MCY	0.54	0.53
tblVehicleEF	MCY	0.15	0.15
tblVehicleEF	MCY	18.72	19.20
tblVehicleEF	MCY	9.68	9.64
tblVehicleEF	MCY	189.29	188.47
tblVehicleEF	MCY	44.13	44.88
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	2.4730e-003	2.3830e-003
tblVehicleEF	MCY	3.6800e-003	3.9570e-003
tblVehicleEF	MCY	2.3100e-003	2.2280e-003
tblVehicleEF	MCY	3.4590e-003	3.7290e-003
tblVehicleEF	MCY	1.06	1.07
tblVehicleEF	MCY	0.62	0.65
tblVehicleEF	MCY	0.64	0.65
tblVehicleEF	MCY	2.58	2.61
tblVehicleEF	MCY	0.58	0.62
tblVehicleEF	MCY	2.04	2.06
tblVehicleEF	MCY	6.5900e-004	6.6700e-004
tblVehicleEF	MCY	1.06	1.07
tblVehicleEF	MCY	0.62	0.65
tblVehicleEF	MCY	0.64	0.65
tblVehicleEF	MCY	3.22	3.25
tblVehicleEF	MCY	0.58	0.62
tblVehicleEF	MCY	2.22	2.24
tblVehicleEF	MCY	0.53	0.52
tblVehicleEF	MCY	0.13	0.13

tblVehicleEF	MCY	18.05	18.48
tblVehicleEF	MCY	8.84	8.82
tblVehicleEF	MCY	189.29	188.47
tblVehicleEF	MCY	44.13	44.88
tblVehicleEF	MCY	0.99	0.99
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	2.4730e-003	2.3830e-003
tblVehicleEF	MCY	3.6800e-003	3.9570e-003
tblVehicleEF	MCY	2.3100e-003	2.2280e-003
tblVehicleEF	MCY	3.4590e-003	3.7290e-003
tblVehicleEF	MCY	1.72	1.73
tblVehicleEF	MCY	0.68	0.71
tblVehicleEF	MCY	1.06	1.08
tblVehicleEF	MCY	2.52	2.55
tblVehicleEF	MCY	0.54	0.58
tblVehicleEF	MCY	1.82	1.84
tblVehicleEF	MCY	2.2650e-003	2.2640e-003
tblVehicleEF	MCY	6.3900e-004	6.4700e-004
tblVehicleEF	MCY	1.72	1.73
tblVehicleEF	MCY	0.68	0.71
tblVehicleEF	MCY	1.06	1.08
tblVehicleEF	MCY	3.15	3.17
tblVehicleEF	MCY	0.54	0.58
tblVehicleEF	MCY	1.98	2.00
tblVehicleEF	MCY	0.54	0.54
tblVehicleEF	MCY	0.15	0.15
tblVehicleEF	MCY	18.82	19.30

tblVehicleEF	MCY	9.83	9.78
tblVehicleEF	MCY	189.29	188.47
tblVehicleEF	MCY	44.13	44.88
tblVehicleEF	MCY	1.10	1.11
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	2.4730e-003	2.3830e-003
tblVehicleEF	MCY	3.6800e-003	3.9570e-003
tblVehicleEF	MCY	2.3100e-003	2.2280e-003
tblVehicleEF	MCY	3.4590e-003	3.7290e-003
tblVehicleEF	MCY	1.15	1.16
tblVehicleEF	MCY	0.80	0.84
tblVehicleEF	MCY	0.61	0.62
tblVehicleEF	MCY	2.59	2.62
tblVehicleEF	MCY	0.67	0.71
tblVehicleEF	MCY	2.08	2.10
tblVehicleEF	MCY	6.6300e-004	6.7100e-004
tblVehicleEF	MCY	1.15	1.16
tblVehicleEF	MCY	0.80	0.84
tblVehicleEF	MCY	0.61	0.62
tblVehicleEF	MCY	3.23	3.26
tblVehicleEF	MCY	0.67	0.71
tblVehicleEF	MCY	2.26	2.29
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	1.21	1.56
tblVehicleEF	MDV	2.22	2.79
tblVehicleEF	MDV	495.22	528.65

tblVehicleEF	MDV	99.91	106.35
tblVehicleEF	MDV	0.13	0.17
tblVehicleEF	MDV	0.19	0.25
tblVehicleEF	MDV	2.2990e-003	2.4280e-003
tblVehicleEF	MDV	2.4650e-003	2.5830e-003
tblVehicleEF	MDV	2.1190e-003	2.2400e-003
tblVehicleEF	MDV	2.2660e-003	2.3780e-003
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.15	0.16
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.17	0.22
tblVehicleEF	MDV	4.9590e-003	5.2990e-003
tblVehicleEF	MDV	1.0380e-003	1.1130e-003
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.15	0.16
tblVehicleEF	MDV	0.07	0.07
tblVehicleEF	MDV	0.04	0.06
tblVehicleEF	MDV	0.09	0.09
tblVehicleEF	MDV	0.18	0.24
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	1.32	1.69
tblVehicleEF	MDV	1.90	2.39
tblVehicleEF	MDV	516.89	551.85
tblVehicleEF	MDV	99.91	106.35

tblVehicleEF	MDV	0.11	0.15
tblVehicleEF	MDV	0.18	0.23
tblVehicleEF	MDV	2.2990e-003	2.4280e-003
tblVehicleEF	MDV	2.4650e-003	2.5830e-003
tblVehicleEF	MDV	2.1190e-003	2.2400e-003
tblVehicleEF	MDV	2.2660e-003	2.3780e-003
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.15	0.17
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.03	0.05
tblVehicleEF	MDV	0.08	0.08
tblVehicleEF	MDV	0.15	0.19
tblVehicleEF	MDV	5.1770e-003	5.5330e-003
tblVehicleEF	MDV	1.0320e-003	1.1050e-003
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.15	0.17
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.08	0.08
tblVehicleEF	MDV	0.16	0.21
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	1.17	1.52
tblVehicleEF	MDV	2.29	2.88
tblVehicleEF	MDV	487.26	520.14
tblVehicleEF	MDV	99.91	106.35
tblVehicleEF	MDV	0.13	0.17

tblVehicleEF	MDV	0.20	0.26
tblVehicleEF	MDV	2.2990e-003	2.4280e-003
tblVehicleEF	MDV	2.4650e-003	2.5830e-003
tblVehicleEF	MDV	2.1190e-003	2.2400e-003
tblVehicleEF	MDV	2.2660e-003	2.3780e-003
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.17	0.22
tblVehicleEF	MDV	4.8790e-003	5.2130e-003
tblVehicleEF	MDV	1.0390e-003	1.1140e-003
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.04	0.06
tblVehicleEF	MDV	0.10	0.11
tblVehicleEF	MDV	0.19	0.24
tblVehicleEF	MH	0.02	0.04
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.76	2.77
tblVehicleEF	MH	5.23	6.41
tblVehicleEF	MH	1,125.05	1,135.33
tblVehicleEF	MH	59.88	61.01
tblVehicleEF	MH	1.00	1.17
tblVehicleEF	MH	0.75	0.85

tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.0430e-003	1.2190e-003
tblVehicleEF	MH	3.2050e-003	3.1990e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	9.5900e-004	1.1210e-003
tblVehicleEF	MH	0.84	1.07
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.36	0.45
tblVehicleEF	MH	0.07	0.10
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.30	0.36
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.9000e-004	7.2200e-004
tblVehicleEF	MH	0.84	1.07
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.36	0.45
tblVehicleEF	MH	0.10	0.14
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.33	0.40
tblVehicleEF	MH	0.02	0.04
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.81	2.85
tblVehicleEF	MH	4.92	6.02
tblVehicleEF	MH	1,125.05	1,135.33
tblVehicleEF	MH	59.88	61.01
tblVehicleEF	MH	0.92	1.07

tblVehicleEF	MH	0.71	0.82
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.0430e-003	1.2190e-003
tblVehicleEF	MH	3.2050e-003	3.1990e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	9.5900e-004	1.1210e-003
tblVehicleEF	MH	1.24	1.58
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.51	0.65
tblVehicleEF	MH	0.07	0.11
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.29	0.35
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.8400e-004	7.1500e-004
tblVehicleEF	MH	1.24	1.58
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.51	0.65
tblVehicleEF	MH	0.10	0.15
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.31	0.38
tblVehicleEF	MH	0.02	0.04
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.75	2.74
tblVehicleEF	MH	5.28	6.46
tblVehicleEF	MH	1,125.05	1,135.33
tblVehicleEF	MH	59.88	61.01

tblVehicleEF	MH	0.98	1.15
tblVehicleEF	MH	0.75	0.86
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.0430e-003	1.2190e-003
tblVehicleEF	MH	3.2050e-003	3.1990e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	9.5900e-004	1.1210e-003
tblVehicleEF	MH	0.95	1.21
tblVehicleEF	MH	0.07	0.09
tblVehicleEF	MH	0.37	0.46
tblVehicleEF	MH	0.07	0.10
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.30	0.37
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.9000e-004	7.2200e-004
tblVehicleEF	MH	0.95	1.21
tblVehicleEF	MH	0.07	0.09
tblVehicleEF	MH	0.37	0.46
tblVehicleEF	MH	0.10	0.14
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.33	0.40
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.8910e-003	5.7010e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.36	0.39
tblVehicleEF	MHD	0.32	0.42

tblVehicleEF	MHD	5.63	6.85
tblVehicleEF	MHD	130.55	131.02
tblVehicleEF	MHD	1,141.08	1,155.79
tblVehicleEF	MHD	62.84	65.08
tblVehicleEF	MHD	0.35	0.52
tblVehicleEF	MHD	0.76	1.23
tblVehicleEF	MHD	9.98	9.82
tblVehicleEF	MHD	1.0200e-004	2.8600e-004
tblVehicleEF	MHD	2.8420e-003	5.6410e-003
tblVehicleEF	MHD	8.1400e-004	8.9100e-004
tblVehicleEF	MHD	9.7000e-005	2.7300e-004
tblVehicleEF	MHD	2.7140e-003	5.3920e-003
tblVehicleEF	MHD	7.4900e-004	8.1900e-004
tblVehicleEF	MHD	1.0540e-003	1.2390e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.0500e-004	7.9100e-004
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.34	0.42
tblVehicleEF	MHD	1.2580e-003	1.2630e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.2700e-004	7.7100e-004
tblVehicleEF	MHD	1.0540e-003	1.2390e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	7.9100e-004

tblVehicleEF	MHD	0.04	0.06
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.38	0.46
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	3.9490e-003	5.7940e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.26	0.28
tblVehicleEF	MHD	0.32	0.43
tblVehicleEF	MHD	5.34	6.50
tblVehicleEF	MHD	138.27	138.77
tblVehicleEF	MHD	1,141.08	1,155.79
tblVehicleEF	MHD	62.84	65.08
tblVehicleEF	MHD	0.36	0.53
tblVehicleEF	MHD	0.71	1.16
tblVehicleEF	MHD	9.94	9.78
tblVehicleEF	MHD	8.6000e-005	2.4100e-004
tblVehicleEF	MHD	2.8420e-003	5.6410e-003
tblVehicleEF	MHD	8.1400e-004	8.9100e-004
tblVehicleEF	MHD	8.2000e-005	2.3000e-004
tblVehicleEF	MHD	2.7140e-003	5.3920e-003
tblVehicleEF	MHD	7.4900e-004	8.1900e-004
tblVehicleEF	MHD	1.5770e-003	1.8580e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	9.9000e-004	1.1240e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.02	0.02

tblVehicleEF	MHD	0.33	0.40
tblVehicleEF	MHD	1.3310e-003	1.3360e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.2200e-004	7.6500e-004
tblVehicleEF	MHD	1.5770e-003	1.8580e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	9.9000e-004	1.1240e-003
tblVehicleEF	MHD	0.04	0.06
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.36	0.44
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.8750e-003	5.6760e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.50	0.53
tblVehicleEF	MHD	0.32	0.42
tblVehicleEF	MHD	5.68	6.91
tblVehicleEF	MHD	119.87	120.30
tblVehicleEF	MHD	1,141.08	1,155.79
tblVehicleEF	MHD	62.84	65.08
tblVehicleEF	MHD	0.33	0.49
tblVehicleEF	MHD	0.74	1.21
tblVehicleEF	MHD	9.99	9.83
tblVehicleEF	MHD	1.2400e-004	3.4800e-004
tblVehicleEF	MHD	2.8420e-003	5.6410e-003
tblVehicleEF	MHD	8.1400e-004	8.9100e-004
tblVehicleEF	MHD	1.1800e-004	3.3300e-004

tblVehicleEF	MHD	2.7140e-003	5.3920e-003
tblVehicleEF	MHD	7.4900e-004	8.1900e-004
tblVehicleEF	MHD	1.0750e-003	1.2900e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	6.8500e-004	7.7500e-004
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.35	0.42
tblVehicleEF	MHD	1.1580e-003	1.1630e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.2800e-004	7.7200e-004
tblVehicleEF	MHD	1.0750e-003	1.2900e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	6.8500e-004	7.7500e-004
tblVehicleEF	MHD	0.04	0.06
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.38	0.46
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.0280e-003	8.8720e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.25	0.29
tblVehicleEF	OBUS	0.45	0.60
tblVehicleEF	OBUS	5.18	5.75
tblVehicleEF	OBUS	101.82	111.80
tblVehicleEF	OBUS	1,246.68	1,266.65

tblVehicleEF	OBUS	67.80	68.32
tblVehicleEF	OBUS	0.22	0.58
tblVehicleEF	OBUS	0.69	1.73
tblVehicleEF	OBUS	2.52	2.63
tblVehicleEF	OBUS	2.0000e-005	2.0400e-004
tblVehicleEF	OBUS	2.6330e-003	8.7020e-003
tblVehicleEF	OBUS	8.2900e-004	7.8900e-004
tblVehicleEF	OBUS	1.9000e-005	1.9500e-004
tblVehicleEF	OBUS	2.5030e-003	8.3100e-003
tblVehicleEF	OBUS	7.6200e-004	7.2500e-004
tblVehicleEF	OBUS	1.4160e-003	1.4710e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	7.6700e-004	7.7800e-004
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.32	0.36
tblVehicleEF	OBUS	9.8300e-004	1.0790e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.6900e-004	7.8400e-004
tblVehicleEF	OBUS	1.4160e-003	1.4710e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	7.6700e-004	7.7800e-004
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.35	0.39

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	6.1370e-003	9.0250e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.24	0.27
tblVehicleEF	OBUS	0.45	0.61
tblVehicleEF	OBUS	4.89	5.43
tblVehicleEF	OBUS	106.89	117.45
tblVehicleEF	OBUS	1,246.68	1,266.65
tblVehicleEF	OBUS	67.80	68.32
tblVehicleEF	OBUS	0.22	0.60
tblVehicleEF	OBUS	0.64	1.63
tblVehicleEF	OBUS	2.49	2.59
tblVehicleEF	OBUS	1.7000e-005	1.7200e-004
tblVehicleEF	OBUS	2.6330e-003	8.7020e-003
tblVehicleEF	OBUS	8.2900e-004	7.8900e-004
tblVehicleEF	OBUS	1.6000e-005	1.6400e-004
tblVehicleEF	OBUS	2.5030e-003	8.3100e-003
tblVehicleEF	OBUS	7.6200e-004	7.2500e-004
tblVehicleEF	OBUS	2.0710e-003	2.1550e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	1.0770e-003	1.1010e-003
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.31	0.35
tblVehicleEF	OBUS	1.0320e-003	1.1330e-003
tblVehicleEF	OBUS	0.01	0.01

tblVehicleEF	OBUS	7.6400e-004	7.7900e-004
tblVehicleEF	OBUS	2.0710e-003	2.1550e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	1.0770e-003	1.1010e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.34	0.38
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.9990e-003	8.8310e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.31
tblVehicleEF	OBUS	0.45	0.60
tblVehicleEF	OBUS	5.23	5.81
tblVehicleEF	OBUS	94.83	104.00
tblVehicleEF	OBUS	1,246.68	1,266.65
tblVehicleEF	OBUS	67.80	68.32
tblVehicleEF	OBUS	0.21	0.56
tblVehicleEF	OBUS	0.68	1.70
tblVehicleEF	OBUS	2.53	2.64
tblVehicleEF	OBUS	2.4000e-005	2.4800e-004
tblVehicleEF	OBUS	2.6330e-003	8.7020e-003
tblVehicleEF	OBUS	8.2900e-004	7.8900e-004
tblVehicleEF	OBUS	2.3000e-005	2.3700e-004
tblVehicleEF	OBUS	2.5030e-003	8.3100e-003
tblVehicleEF	OBUS	7.6200e-004	7.2500e-004
tblVehicleEF	OBUS	1.4400e-003	1.5180e-003

tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	7.4400e-004	7.5800e-004
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.33	0.36
tblVehicleEF	OBUS	9.1700e-004	1.0040e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.7000e-004	7.8500e-004
tblVehicleEF	OBUS	1.4400e-003	1.5180e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	7.4400e-004	7.5800e-004
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.36	0.40
tblVehicleEF	SBUS	0.84	0.86
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.06	0.07
tblVehicleEF	SBUS	8.28	8.04
tblVehicleEF	SBUS	0.67	0.79
tblVehicleEF	SBUS	7.16	7.53
tblVehicleEF	SBUS	1,105.31	1,136.99
tblVehicleEF	SBUS	1,070.53	1,088.61
tblVehicleEF	SBUS	56.44	53.57
tblVehicleEF	SBUS	8.50	9.91
tblVehicleEF	SBUS	3.81	4.55

tblVehicleEF	SBUS	11.84	12.42
tblVehicleEF	SBUS	8.1160e-003	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	8.5300e-004	7.8000e-004
tblVehicleEF	SBUS	7.7650e-003	0.01
tblVehicleEF	SBUS	2.6580e-003	2.6770e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	7.8400e-004	7.1700e-004
tblVehicleEF	SBUS	3.3720e-003	3.3870e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.99	0.97
tblVehicleEF	SBUS	1.8240e-003	1.7160e-003
tblVehicleEF	SBUS	0.10	0.11
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.38	0.40
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.8800e-004	6.6600e-004
tblVehicleEF	SBUS	3.3720e-003	3.3870e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	1.43	1.40
tblVehicleEF	SBUS	1.8240e-003	1.7160e-003
tblVehicleEF	SBUS	0.12	0.13
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.41	0.43
tblVehicleEF	SBUS	0.84	0.86

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.05	0.06
tblVehicleEF	SBUS	8.18	7.92
tblVehicleEF	SBUS	0.68	0.80
tblVehicleEF	SBUS	5.81	6.11
tblVehicleEF	SBUS	1,154.44	1,188.84
tblVehicleEF	SBUS	1,070.53	1,088.61
tblVehicleEF	SBUS	56.44	53.57
tblVehicleEF	SBUS	8.77	10.22
tblVehicleEF	SBUS	3.59	4.29
tblVehicleEF	SBUS	11.81	12.39
tblVehicleEF	SBUS	6.8420e-003	9.0250e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	8.5300e-004	7.8000e-004
tblVehicleEF	SBUS	6.5460e-003	8.6350e-003
tblVehicleEF	SBUS	2.6580e-003	2.6770e-003
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	7.8400e-004	7.1700e-004
tblVehicleEF	SBUS	4.9610e-003	4.9940e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.98	0.97
tblVehicleEF	SBUS	2.5750e-003	2.4540e-003
tblVehicleEF	SBUS	0.10	0.11
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.34	0.35
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6600e-004	6.4200e-004
tblVehicleEF	SBUS	4.9610e-003	4.9940e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	1.42	1.39
tblVehicleEF	SBUS	2.5750e-003	2.4540e-003
tblVehicleEF	SBUS	0.12	0.13
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.37	0.38
tblVehicleEF	SBUS	0.84	0.86
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.06	0.07
tblVehicleEF	SBUS	8.43	8.21
tblVehicleEF	SBUS	0.66	0.78
tblVehicleEF	SBUS	7.40	7.78
tblVehicleEF	SBUS	1,037.46	1,065.38
tblVehicleEF	SBUS	1,070.53	1,088.61
tblVehicleEF	SBUS	56.44	53.57
tblVehicleEF	SBUS	8.13	9.47
tblVehicleEF	SBUS	3.74	4.47
tblVehicleEF	SBUS	11.85	12.43
tblVehicleEF	SBUS	9.8760e-003	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	8.5300e-004	7.8000e-004
tblVehicleEF	SBUS	9.4480e-003	0.01
tblVehicleEF	SBUS	2.6580e-003	2.6770e-003

tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	7.8400e-004	7.1700e-004
tblVehicleEF	SBUS	3.3940e-003	3.5050e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	0.99	0.97
tblVehicleEF	SBUS	1.7490e-003	1.6510e-003
tblVehicleEF	SBUS	0.10	0.11
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.39	0.40
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.9200e-004	6.7000e-004
tblVehicleEF	SBUS	3.3940e-003	3.5050e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	1.43	1.40
tblVehicleEF	SBUS	1.7490e-003	1.6510e-003
tblVehicleEF	SBUS	0.12	0.13
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.42	0.44
tblVehicleEF	UBUS	2.44	2.78
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	10.68	11.79
tblVehicleEF	UBUS	8.84	8.90
tblVehicleEF	UBUS	1,951.45	1,987.48
tblVehicleEF	UBUS	100.38	92.58
tblVehicleEF	UBUS	9.33	10.68
tblVehicleEF	UBUS	15.09	15.66

tblVehicleEF	UBUS	0.60	0.62
tblVehicleEF	UBUS	0.12	0.14
tblVehicleEF	UBUS	1.1360e-003	1.0320e-003
tblVehicleEF	UBUS	0.26	0.27
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	1.0450e-003	9.4900e-004
tblVehicleEF	UBUS	4.1100e-003	4.1600e-003
tblVehicleEF	UBUS	0.07	0.07
tblVehicleEF	UBUS	2.4100e-003	2.3580e-003
tblVehicleEF	UBUS	0.79	0.90
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	0.68	0.67
tblVehicleEF	UBUS	9.8060e-003	9.9290e-003
tblVehicleEF	UBUS	1.1630e-003	1.0860e-003
tblVehicleEF	UBUS	4.1100e-003	4.1600e-003
tblVehicleEF	UBUS	0.07	0.07
tblVehicleEF	UBUS	2.4100e-003	2.3580e-003
tblVehicleEF	UBUS	3.32	3.79
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	0.75	0.73
tblVehicleEF	UBUS	2.44	2.78
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	10.72	11.84
tblVehicleEF	UBUS	7.66	7.71
tblVehicleEF	UBUS	1,951.45	1,987.48
tblVehicleEF	UBUS	100.38	92.58
tblVehicleEF	UBUS	8.79	10.07

tblVehicleEF	UBUS	15.04	15.61
tblVehicleEF	UBUS	0.60	0.62
tblVehicleEF	UBUS	0.12	0.14
tblVehicleEF	UBUS	1.1360e-003	1.0320e-003
tblVehicleEF	UBUS	0.26	0.27
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	1.0450e-003	9.4900e-004
tblVehicleEF	UBUS	5.8640e-003	5.9260e-003
tblVehicleEF	UBUS	0.07	0.07
tblVehicleEF	UBUS	3.3120e-003	3.2450e-003
tblVehicleEF	UBUS	0.80	0.91
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	0.63	0.61
tblVehicleEF	UBUS	9.8070e-003	9.9300e-003
tblVehicleEF	UBUS	1.1430e-003	1.0650e-003
tblVehicleEF	UBUS	5.8640e-003	5.9260e-003
tblVehicleEF	UBUS	0.07	0.07
tblVehicleEF	UBUS	3.3120e-003	3.2450e-003
tblVehicleEF	UBUS	3.33	3.80
tblVehicleEF	UBUS	0.02	0.02
tblVehicleEF	UBUS	0.69	0.67
tblVehicleEF	UBUS	2.44	2.78
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	10.66	11.77
tblVehicleEF	UBUS	9.05	9.11
tblVehicleEF	UBUS	1,951.45	1,987.48
tblVehicleEF	UBUS	100.38	92.58

tblVehicleEF	UBUS	9.15	10.47
tblVehicleEF	UBUS	15.10	15.67
tblVehicleEF	UBUS	0.60	0.62
tblVehicleEF	UBUS	0.12	0.14
tblVehicleEF	UBUS	1.1360e-003	1.0320e-003
tblVehicleEF	UBUS	0.26	0.27
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	1.0450e-003	9.4900e-004
tblVehicleEF	UBUS	4.6290e-003	4.7460e-003
tblVehicleEF	UBUS	0.08	0.09
tblVehicleEF	UBUS	2.5090e-003	2.4840e-003
tblVehicleEF	UBUS	0.79	0.90
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.70	0.68
tblVehicleEF	UBUS	9.8060e-003	9.9290e-003
tblVehicleEF	UBUS	1.1670e-003	1.0900e-003
tblVehicleEF	UBUS	4.6290e-003	4.7460e-003
tblVehicleEF	UBUS	0.08	0.09
tblVehicleEF	UBUS	2.5090e-003	2.4840e-003
tblVehicleEF	UBUS	3.31	3.78
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.76	0.75
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.08
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00

tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.6786	13.5506	14.3287	0.0250	0.8981	0.9071	1.8052	0.1520	0.8480	1.0000	0.0000	2,422.2359	2,422.2359	0.5518	0.0000	2,436.0302
2022	1.4159	11.9567	14.0598	0.0248	0.4918	0.6237	1.1155	0.1304	0.5819	0.7124	0.0000	2,406.1863	2,406.1863	0.5487	0.0000	2,419.9037
Maximum	**1.6786**	**13.5506**	**14.3287**	**0.0250**	**0.8981**	**0.9071**	**1.8052**	**0.1520**	**0.8480**	**1.0000**	**0.0000**	**2,422.2359**	**2,422.2359**	**0.5518**	**0.0000**	**2,436.0302**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.6786	13.5506	14.3287	0.0250	0.5587	0.9071	1.4659	0.1304	0.8480	0.9626	0.0000	2,422.2359	2,422.2359	0.5518	0.0000	2,436.0302
2022	1.4159	11.9567	14.0598	0.0248	0.4918	0.6237	1.1155	0.1304	0.5819	0.7124	0.0000	2,406.1863	2,406.1863	0.5487	0.0000	2,419.9037
Maximum	**1.6786**	**13.5506**	**14.3287**	**0.0250**	**0.5587**	**0.9071**	**1.4659**	**0.1304**	**0.8480**	**0.9626**	**0.0000**	**2,422.2359**	**2,422.2359**	**0.5518**	**0.0000**	**2,436.0302**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.42**	**0.00**	**11.62**	**7.63**	**0.00**	**2.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603
Total	**0.1153**	**0.0288**	**0.0335**	**1.9000e-004**	**3.7700e-003**	**1.8900e-003**	**5.6600e-003**	**1.0100e-003**	**1.8900e-003**	**2.8900e-003**		**33.7254**	**33.7254**	**8.0000e-004**	**5.3000e-004**	**33.9049**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603
Total	**0.1153**	**0.0288**	**0.0335**	**1.9000e-004**	**3.7700e-003**	**1.8900e-003**	**5.6600e-003**	**1.0100e-003**	**1.8900e-003**	**2.8900e-003**		**33.7254**	**33.7254**	**8.0000e-004**	**5.3000e-004**	**33.9049**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/6/2021	12/17/2021	5	10	
2	Site Preparation	Site Preparation	12/18/2021	12/20/2021	5	1	
3	Building Construction	Building Construction	12/21/2021	5/9/2022	5	100	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Generator Sets	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Generator Sets	1	8.00	84	0.74
Site Preparation	Graders	1	8.00	84	0.74
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	30.00	0.00	14.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	30.00	1.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Building Construction	6	44.00	0.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0809	0.0000	0.0809	0.0123	0.0000	0.0123			0.0000			0.0000
Off-Road	0.9961	8.8430	9.3791	0.0159		0.4831	0.4831		0.4710	0.4710		1,514.4234	1,514.4234	0.1711		1,518.7007
Total	**0.9961**	**8.8430**	**9.3791**	**0.0159**	**0.0809**	**0.4831**	**0.5640**	**0.0123**	**0.4710**	**0.4833**		**1,514.4234**	**1,514.4234**	**0.1711**		**1,518.7007**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3600e-003	0.2834	0.0662	7.1000e-004	0.0152	7.5000e-004	0.0159	4.1600e-003	7.2000e-004	4.8800e-003		77.5003	77.5003	6.1000e-003		77.6528
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1431	0.0978	1.1048	3.2300e-003	0.3353	2.7100e-003	0.3380	0.0889	2.5000e-003	0.0914		321.6753	321.6753	9.4700e-003		321.9120
Total	**0.1514**	**0.3812**	**1.1710**	**3.9400e-003**	**0.3505**	**3.4600e-003**	**0.3540**	**0.0931**	**3.2200e-003**	**0.0963**		**399.1756**	**399.1756**	**0.0156**		**399.5648**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0316	0.0000	0.0316	4.7800e-003	0.0000	4.7800e-003			0.0000			0.0000
Off-Road	0.9961	8.8430	9.3791	0.0159		0.4831	0.4831		0.4710	0.4710	0.0000	1,514.4234	1,514.4234	0.1711		1,518.7007
Total	**0.9961**	**8.8430**	**9.3791**	**0.0159**	**0.0316**	**0.4831**	**0.5146**	**4.7800e-003**	**0.4710**	**0.4758**	**0.0000**	**1,514.4234**	**1,514.4234**	**0.1711**		**1,518.7007**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.3600e-003	0.2834	0.0662	7.1000e-004	0.0152	7.5000e-004	0.0159	4.1600e-003	7.2000e-004	4.8800e-003		77.5003	77.5003	6.1000e-003		77.6528
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1431	0.0978	1.1048	3.2300e-003	0.3353	2.7100e-003	0.3380	0.0889	2.5000e-003	0.0914		321.6753	321.6753	9.4700e-003		321.9120
Total	**0.1514**	**0.3812**	**1.1710**	**3.9400e-003**	**0.3505**	**3.4600e-003**	**0.3540**	**0.0931**	**3.2200e-003**	**0.0963**		**399.1756**	**399.1756**	**0.0156**		**399.5648**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5564	0.0000	0.5564	0.0612	0.0000	0.0612			0.0000			0.0000
Off-Road	1.5323	12.8736	10.8255	0.0150		0.9042	0.9042		0.8453	0.8453		1,438.1831	1,438.1831	0.2954		1,445.5688
Total	**1.5323**	**12.8736**	**10.8255**	**0.0150**	**0.5564**	**0.9042**	**1.4606**	**0.0612**	**0.8453**	**0.9065**		**1,438.1831**	**1,438.1831**	**0.2954**		**1,445.5688**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.1900e-003	0.0969	0.0281	2.5000e-004	6.4000e-003	2.0000e-004	6.6100e-003	1.8400e-003	2.0000e-004	2.0400e-003		26.7346	26.7346	1.7300e-003		26.7777
Worker	0.1431	0.0978	1.1048	3.2300e-003	0.3353	2.7100e-003	0.3380	0.0889	2.5000e-003	0.0914		321.6753	321.6753	9.4700e-003		321.9120
Total	**0.1462**	**0.1947**	**1.1329**	**3.4800e-003**	**0.3417**	**2.9100e-003**	**0.3447**	**0.0908**	**2.7000e-003**	**0.0935**		**348.4099**	**348.4099**	**0.0112**		**348.6897**

3.3 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2170	0.0000	0.2170	0.0239	0.0000	0.0239			0.0000			0.0000
Off-Road	1.5323	12.8736	10.8255	0.0150		0.9042	0.9042		0.8453	0.8453	0.0000	1,438.1831	1,438.1831	0.2954		1,445.5688
Total	**1.5323**	**12.8736**	**10.8255**	**0.0150**	**0.2170**	**0.9042**	**1.1212**	**0.0239**	**0.8453**	**0.8692**	**0.0000**	**1,438.1831**	**1,438.1831**	**0.2954**		**1,445.5688**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.1900e-003	0.0969	0.0281	2.5000e-004	6.4000e-003	2.0000e-004	6.6100e-003	1.8400e-003	2.0000e-004	2.0400e-003		26.7346	26.7346	1.7300e-003		26.7777
Worker	0.1431	0.0978	1.1048	3.2300e-003	0.3353	2.7100e-003	0.3380	0.0889	2.5000e-003	0.0914		321.6753	321.6753	9.4700e-003		321.9120
Total	**0.1462**	**0.1947**	**1.1329**	**3.4800e-003**	**0.3417**	**2.9100e-003**	**0.3447**	**0.0908**	**2.7000e-003**	**0.0935**		**348.4099**	**348.4099**	**0.0112**		**348.6897**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3580	13.4071	12.7084	0.0202		0.7303	0.7303		0.6812	0.6812		1,950.4454	1,950.4454	0.5379		1,963.8927
Total	**1.3580**	**13.4071**	**12.7084**	**0.0202**		**0.7303**	**0.7303**		**0.6812**	**0.6812**		**1,950.4454**	**1,950.4454**	**0.5379**		**1,963.8927**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2098	0.1435	1.6203	4.7400e-003	0.4918	3.9700e-003	0.4958	0.1304	3.6600e-003	0.1341		471.7905	471.7905	0.0139		472.1376
Total	**0.2098**	**0.1435**	**1.6203**	**4.7400e-003**	**0.4918**	**3.9700e-003**	**0.4958**	**0.1304**	**3.6600e-003**	**0.1341**		**471.7905**	**471.7905**	**0.0139**		**472.1376**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3580	13.4071	12.7084	0.0202		0.7303	0.7303		0.6812	0.6812	0.0000	1,950.4454	1,950.4454	0.5379		1,963.8927
Total	**1.3580**	**13.4071**	**12.7084**	**0.0202**		**0.7303**	**0.7303**		**0.6812**	**0.6812**	**0.0000**	**1,950.4454**	**1,950.4454**	**0.5379**		**1,963.8927**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2098	0.1435	1.6203	4.7400e-003	0.4918	3.9700e-003	0.4958	0.1304	3.6600e-003	0.1341		471.7905	471.7905	0.0139		472.1376
Total	**0.2098**	**0.1435**	**1.6203**	**4.7400e-003**	**0.4918**	**3.9700e-003**	**0.4958**	**0.1304**	**3.6600e-003**	**0.1341**		**471.7905**	**471.7905**	**0.0139**		**472.1376**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2189	11.8271	12.5674	0.0202		0.6199	0.6199		0.5784	0.5784		1,950.9757	1,950.9757	0.5362		1,964.3798
Total	**1.2189**	**11.8271**	**12.5674**	**0.0202**		**0.6199**	**0.6199**		**0.5784**	**0.5784**		**1,950.9757**	**1,950.9757**	**0.5362**		**1,964.3798**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1971	0.1296	1.4924	4.5700e-003	0.4918	3.8500e-003	0.4957	0.1304	3.5500e-003	0.1340		455.2106	455.2106	0.0125		455.5239
Total	**0.1971**	**0.1296**	**1.4924**	**4.5700e-003**	**0.4918**	**3.8500e-003**	**0.4957**	**0.1304**	**3.5500e-003**	**0.1340**		**455.2106**	**455.2106**	**0.0125**		**455.5239**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2189	11.8271	12.5674	0.0202		0.6199	0.6199		0.5784	0.5784	0.0000	1,950.9757	1,950.9757	0.5362		1,964.3798
Total	**1.2189**	**11.8271**	**12.5674**	**0.0202**		**0.6199**	**0.6199**		**0.5784**	**0.5784**	**0.0000**	**1,950.9757**	**1,950.9757**	**0.5362**		**1,964.3798**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1971	0.1296	1.4924	4.5700e-003	0.4918	3.8500e-003	0.4957	0.1304	3.5500e-003	0.1340		455.2106	455.2106	0.0125		455.5239
Total	**0.1971**	**0.1296**	**1.4924**	**4.5700e-003**	**0.4918**	**3.8500e-003**	**0.4957**	**0.1304**	**3.5500e-003**	**0.1340**		**455.2106**	**455.2106**	**0.0125**		**455.5239**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603
Unmitigated	8.6000e-004	4.4400e-003	0.0126	4.0000e-005	3.7700e-003	4.0000e-005	3.8100e-003	1.0100e-003	4.0000e-005	1.0400e-003		4.5543	4.5543	2.4000e-004		4.5603

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.40	0.00	0.00	1,265	1,265
Total	0.40	0.00	0.00	1,265	1,265

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
NaturalGas Unmitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	247.945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.247945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Unmitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Phase 2 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2023
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Phase 2 Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use -

Construction Phase - From PD

Off-road Equipment - From PD. Other Construction Equipment is "barge".

Off-road Equipment - From PD

Off-road Equipment - From PD

Trips and VMT - From PD

Demolition - 27 cubic yards of concrete demolished

Grading - From PD

Vehicle Trips - 3 trips/week; 156 annual trips

Energy Use - Project produces 96.58 MWh annually

Water And Wastewater - No water usage on site

Solid Waste - No solid waste generated on site

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Mobile Land Use Mitigation -

Energy Mitigation -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblEnergyUse	T24E	2.25	10.47
tblGrading	MaterialExported	0.00	64.00
tblGrading	MaterialImported	0.00	167.00
tblOffRoadEquipment	HorsePower	187.00	84.00

tblOffRoadEquipment	HorsePower	84.00	81.00
tblOffRoadEquipment	HorsePower	46.00	97.00
tblOffRoadEquipment	LoadFactor	0.41	0.74
tblOffRoadEquipment	LoadFactor	0.74	0.73
tblOffRoadEquipment	LoadFactor	0.45	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Building Construction
tblSolidWaste	SolidWasteGenerationRate	6.20	0.00
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripLength	20.00	12.40
tblTripsAndVMT	HaulingTripNumber	4.00	14.00
tblTripsAndVMT	HaulingTripNumber	29.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	2.00	44.00
tblVehicleTrips	ST_TR	1.32	0.00

tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.08
tblWater	ElectricityIntensityFactorForWastewaterTreatment	1,911.00	0.00
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	1,156,250.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0135	0.1137	0.1236	2.2000e-004	4.7400e-003	6.1900e-003	0.0109	1.1700e-003	5.8800e-003	7.0500e-003	0.0000	19.4431	19.4431	3.2400e-003	0.0000	19.5240
2022	0.0635	0.5442	0.6416	1.1300e-003	0.0219	0.0284	0.0503	5.8300e-003	0.0265	0.0323	0.0000	99.6324	99.6324	0.0227	0.0000	100.1989
Maximum	**0.0635**	**0.5442**	**0.6416**	**1.1300e-003**	**0.0219**	**0.0284**	**0.0503**	**5.8300e-003**	**0.0265**	**0.0323**	**0.0000**	**99.6324**	**99.6324**	**0.0227**	**0.0000**	**100.1989**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0135	0.1137	0.1236	2.2000e-004	4.3200e-003	6.1900e-003	0.0105	1.1100e-003	5.8800e-003	6.9900e-003	0.0000	19.4430	19.4430	3.2400e-003	0.0000	19.5240
2022	0.0635	0.5442	0.6416	1.1300e-003	0.0219	0.0284	0.0503	5.8300e-003	0.0265	0.0323	0.0000	99.6323	99.6323	0.0227	0.0000	100.1988
Maximum	**0.0635**	**0.5442**	**0.6416**	**1.1300e-003**	**0.0219**	**0.0284**	**0.0503**	**5.8300e-003**	**0.0265**	**0.0323**	**0.0000**	**99.6323**	**99.6323**	**0.0227**	**0.0000**	**100.1988**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**1.57**	**0.00**	**0.69**	**0.86**	**0.00**	**0.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-6-2021	3-5-2022	0.4253	0.4253
2	3-6-2022	6-5-2022	0.3100	0.3100
		Highest	0.4253	0.4253

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	58.6319	58.6319	1.3600e-003	3.5000e-004	58.7707
Mobile	9.0000e-005	4.3000e-004	1.4200e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5128	0.5128	2.0000e-005	0.0000	0.5134
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0210**	**4.8700e-003**	**5.2100e-003**	**4.0000e-005**	**4.8000e-004**	**3.4000e-004**	**8.2000e-004**	**1.3000e-004**	**3.4000e-004**	**4.7000e-004**	**0.0000**	**59.1448**	**59.1448**	**1.3800e-003**	**3.5000e-004**	**59.2843**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	58.6319	58.6319	1.3600e-003	3.5000e-004	58.7707
Mobile	9.0000e-005	4.3000e-004	1.4200e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5128	0.5128	2.0000e-005	0.0000	0.5134
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0210**	**4.8700e-003**	**5.2100e-003**	**4.0000e-005**	**4.8000e-004**	**3.4000e-004**	**8.2000e-004**	**1.3000e-004**	**3.4000e-004**	**4.7000e-004**	**0.0000**	**59.1448**	**59.1448**	**1.3800e-003**	**3.5000e-004**	**59.2843**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/6/2021	12/17/2021	5	10	
2	Site Preparation	Site Preparation	12/18/2021	12/20/2021	5	1	
3	Building Construction	Building Construction	12/21/2021	5/9/2022	5	100	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Generator Sets	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Generator Sets	1	8.00	84	0.74
Site Preparation	Graders	1	8.00	84	0.74
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	30.00	0.00	14.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	30.00	1.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT
Building Construction	6	44.00	0.00	0.00	14.70	6.90	12.40	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9800e-003	0.0442	0.0469	8.0000e-005		2.4200e-003	2.4200e-003		2.3600e-003	2.3600e-003	0.0000	6.8693	6.8693	7.8000e-004	0.0000	6.8887
Total	**4.9800e-003**	**0.0442**	**0.0469**	**8.0000e-005**	**4.0000e-004**	**2.4200e-003**	**2.8200e-003**	**6.0000e-005**	**2.3600e-003**	**2.4200e-003**	**0.0000**	**6.8693**	**6.8693**	**7.8000e-004**	**0.0000**	**6.8887**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.4500e-003	3.2000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3569	0.3569	3.0000e-005	0.0000	0.3576
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	5.0000e-004	5.6700e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4834	1.4834	4.0000e-005	0.0000	1.4845
Total	**6.9000e-004**	**1.9500e-003**	**5.9900e-003**	**2.0000e-005**	**1.7100e-003**	**1.0000e-005**	**1.7400e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.8403**	**1.8403**	**7.0000e-005**	**0.0000**	**1.8421**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6000e-004	0.0000	1.6000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9800e-003	0.0442	0.0469	8.0000e-005		2.4200e-003	2.4200e-003		2.3600e-003	2.3600e-003	0.0000	6.8693	6.8693	7.8000e-004	0.0000	6.8887
Total	**4.9800e-003**	**0.0442**	**0.0469**	**8.0000e-005**	**1.6000e-004**	**2.4200e-003**	**2.5800e-003**	**2.0000e-005**	**2.3600e-003**	**2.3800e-003**	**0.0000**	**6.8693**	**6.8693**	**7.8000e-004**	**0.0000**	**6.8887**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.4500e-003	3.2000e-004	0.0000	7.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3569	0.3569	3.0000e-005	0.0000	0.3576
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	5.0000e-004	5.6700e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4834	1.4834	4.0000e-005	0.0000	1.4845
Total	**6.9000e-004**	**1.9500e-003**	**5.9900e-003**	**2.0000e-005**	**1.7100e-003**	**1.0000e-005**	**1.7400e-003**	**4.6000e-004**	**1.0000e-005**	**4.7000e-004**	**0.0000**	**1.8403**	**1.8403**	**7.0000e-005**	**0.0000**	**1.8421**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.8000e-004	0.0000	2.8000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-004	6.4400e-003	5.4100e-003	1.0000e-005		4.5000e-004	4.5000e-004		4.2000e-004	4.2000e-004	0.0000	0.6524	0.6524	1.3000e-004	0.0000	0.6557
Total	**7.7000e-004**	**6.4400e-003**	**5.4100e-003**	**1.0000e-005**	**2.8000e-004**	**4.5000e-004**	**7.3000e-004**	**3.0000e-005**	**4.2000e-004**	**4.5000e-004**	**0.0000**	**0.6524**	**0.6524**	**1.3000e-004**	**0.0000**	**0.6557**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	5.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123	0.0000	0.0000	0.0123
Worker	6.0000e-005	5.0000e-005	5.7000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1485
Total	**6.0000e-005**	**1.0000e-004**	**5.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1607**	**0.1607**	**0.0000**	**0.0000**	**0.1608**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-004	6.4400e-003	5.4100e-003	1.0000e-005		4.5000e-004	4.5000e-004		4.2000e-004	4.2000e-004	0.0000	0.6524	0.6524	1.3000e-004	0.0000	0.6557
Total	**7.7000e-004**	**6.4400e-003**	**5.4100e-003**	**1.0000e-005**	**1.1000e-004**	**4.5000e-004**	**5.6000e-004**	**1.0000e-005**	**4.2000e-004**	**4.3000e-004**	**0.0000**	**0.6524**	**0.6524**	**1.3000e-004**	**0.0000**	**0.6557**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	5.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123	0.0000	0.0000	0.0123
Worker	6.0000e-005	5.0000e-005	5.7000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1483	0.1483	0.0000	0.0000	0.1485
Total	**6.0000e-005**	**1.0000e-004**	**5.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1607**	**0.1607**	**0.0000**	**0.0000**	**0.1608**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.1100e-003	0.0603	0.0572	9.0000e-005		3.2900e-003	3.2900e-003		3.0700e-003	3.0700e-003	0.0000	7.9624	7.9624	2.2000e-003	0.0000	8.0173
Total	**6.1100e-003**	**0.0603**	**0.0572**	**9.0000e-005**		**3.2900e-003**	**3.2900e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**7.9624**	**7.9624**	**2.2000e-003**	**0.0000**	**8.0173**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.6000e-004	7.4900e-003	2.0000e-005	2.1700e-003	2.0000e-005	2.1900e-003	5.8000e-004	2.0000e-005	5.9000e-004	0.0000	1.9581	1.9581	6.0000e-005	0.0000	1.9595
Total	**8.5000e-004**	**6.6000e-004**	**7.4900e-003**	**2.0000e-005**	**2.1700e-003**	**2.0000e-005**	**2.1900e-003**	**5.8000e-004**	**2.0000e-005**	**5.9000e-004**	**0.0000**	**1.9581**	**1.9581**	**6.0000e-005**	**0.0000**	**1.9595**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.1100e-003	0.0603	0.0572	9.0000e-005		3.2900e-003	3.2900e-003		3.0700e-003	3.0700e-003	0.0000	7.9624	7.9624	2.2000e-003	0.0000	8.0173
Total	**6.1100e-003**	**0.0603**	**0.0572**	**9.0000e-005**		**3.2900e-003**	**3.2900e-003**		**3.0700e-003**	**3.0700e-003**	**0.0000**	**7.9624**	**7.9624**	**2.2000e-003**	**0.0000**	**8.0173**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.6000e-004	7.4900e-003	2.0000e-005	2.1700e-003	2.0000e-005	2.1900e-003	5.8000e-004	2.0000e-005	5.9000e-004	0.0000	1.9581	1.9581	6.0000e-005	0.0000	1.9595
Total	**8.5000e-004**	**6.6000e-004**	**7.4900e-003**	**2.0000e-005**	**2.1700e-003**	**2.0000e-005**	**2.1900e-003**	**5.8000e-004**	**2.0000e-005**	**5.9000e-004**	**0.0000**	**1.9581**	**1.9581**	**6.0000e-005**	**0.0000**	**1.9595**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0555	0.5381	0.5718	9.2000e-004		0.0282	0.0282		0.0263	0.0263	0.0000	80.5302	80.5302	0.0221	0.0000	81.0835
Total	**0.0555**	**0.5381**	**0.5718**	**9.2000e-004**		**0.0282**	**0.0282**		**0.0263**	**0.0263**	**0.0000**	**80.5302**	**80.5302**	**0.0221**	**0.0000**	**81.0835**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0800e-003	6.0600e-003	0.0698	2.1000e-004	0.0219	1.8000e-004	0.0221	5.8300e-003	1.6000e-004	5.9900e-003	0.0000	19.1022	19.1022	5.3000e-004	0.0000	19.1153
Total	**8.0800e-003**	**6.0600e-003**	**0.0698**	**2.1000e-004**	**0.0219**	**1.8000e-004**	**0.0221**	**5.8300e-003**	**1.6000e-004**	**5.9900e-003**	**0.0000**	**19.1022**	**19.1022**	**5.3000e-004**	**0.0000**	**19.1153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0555	0.5381	0.5718	9.2000e-004		0.0282	0.0282		0.0263	0.0263	0.0000	80.5302	80.5302	0.0221	0.0000	81.0834
Total	**0.0555**	**0.5381**	**0.5718**	**9.2000e-004**		**0.0282**	**0.0282**		**0.0263**	**0.0263**	**0.0000**	**80.5302**	**80.5302**	**0.0221**	**0.0000**	**81.0834**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0800e-003	6.0600e-003	0.0698	2.1000e-004	0.0219	1.8000e-004	0.0221	5.8300e-003	1.6000e-004	5.9900e-003	0.0000	19.1022	19.1022	5.3000e-004	0.0000	19.1153
Total	**8.0800e-003**	**6.0600e-003**	**0.0698**	**2.1000e-004**	**0.0219**	**1.8000e-004**	**0.0221**	**5.8300e-003**	**1.6000e-004**	**5.9900e-003**	**0.0000**	**19.1022**	**19.1022**	**5.3000e-004**	**0.0000**	**19.1153**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.0000e-005	4.3000e-004	1.4200e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5128	0.5128	2.0000e-005	0.0000	0.5134
Unmitigated	9.0000e-005	4.3000e-004	1.4200e-003	1.0000e-005	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.5128	0.5128	2.0000e-005	0.0000	0.5134

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.40	0.00	0.00	1,265	1,265
Total	0.40	0.00	0.00	1,265	1,265

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.545842	0.044768	0.205288	0.119317	0.015350	0.006227	0.020460	0.031333	0.002546	0.002133	0.005184	0.000692	0.000862

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.8025	53.8025	1.2700e-003	2.6000e-004	53.9126
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	53.8025	53.8025	1.2700e-003	2.6000e-004	53.9126
NaturalGas Mitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
NaturalGas Unmitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	90500	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
Total		**4.9000e-004**	**4.4400e-003**	**3.7300e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8294**	**4.8294**	**9.0000e-005**	**9.0000e-005**	**4.8581**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	90500	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
Total		**4.9000e-004**	**4.4400e-003**	**3.7300e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8294**	**4.8294**	**9.0000e-005**	**9.0000e-005**	**4.8581**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	96600	53.8025	1.2700e-003	2.6000e-004	53.9126
Total		**53.8025**	**1.2700e-003**	**2.6000e-004**	**53.9126**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	96600	53.8025	1.2700e-003	2.6000e-004	53.9126
Total		**53.8025**	**1.2700e-003**	**2.6000e-004**	**53.9126**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Unmitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX F
Noise and Vibration Assessment

Technical Memorandum

TO: Cristina Lowery
AECOM

FROM: Terry A. Hayes Associates Inc.

DATE: March 16, 2020

RE: Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project – Noise and Vibration Assessment

Introduction

Terry A. Hayes Associates Inc. (TAHA) has completed a Noise and Vibration Assessment for the Silver Lake and Ivanhoe Reservoir Aeration and Recirculation System Project (proposed project) in accordance with the provisions of the California Environmental Quality Act (CEQA) Statutes and Guidelines. This Assessment is organized as follows:

- Project Description
- Noise and Vibration Topical Information
- Existing Setting
- Regulatory Framework
- Significance Thresholds
- Methodology
- Impact Assessment
- References

Project Description

The Los Angeles Department of Water and Power (LADWP) proposes to implement the Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System Project (proposed project) within its Silver Lake Reservoir Complex (SLRC), which comprises the Silver Lake and Ivanhoe Reservoirs (the reservoirs).

The proposed project would be located in the Silver Lake community of the City of Los Angeles, approximately five miles north of downtown Los Angeles. **Figure 1** shows the regional vicinity of the project site. **Figure 2** shows the project location. The reservoirs require an aeration and recirculation system to ensure that reasonable water quality parameters are met for visual aesthetics and controlling odors. The proposed project would include the installation of a bubble plume aeration system and a recirculation pipe system to ensure oxygenation and destratification of the reservoirs. Destratification allows for the mixing of the reservoir water to allow for oxygen levels to be maintained throughout the reservoir. **Figure 3** shows the aeration and recirculation systems proposed to be installed in the reservoirs. The proposed project would be implemented in two phases as described below.

Terry A. Hayes Associates Inc.
3535 Hayden Avenue, Suite 350
Culver City, California 90232
310.839.4200 fax 310.839.4201

Source: Esri Maps & Data, 2019.

Miles
0 3 6 12 18 24

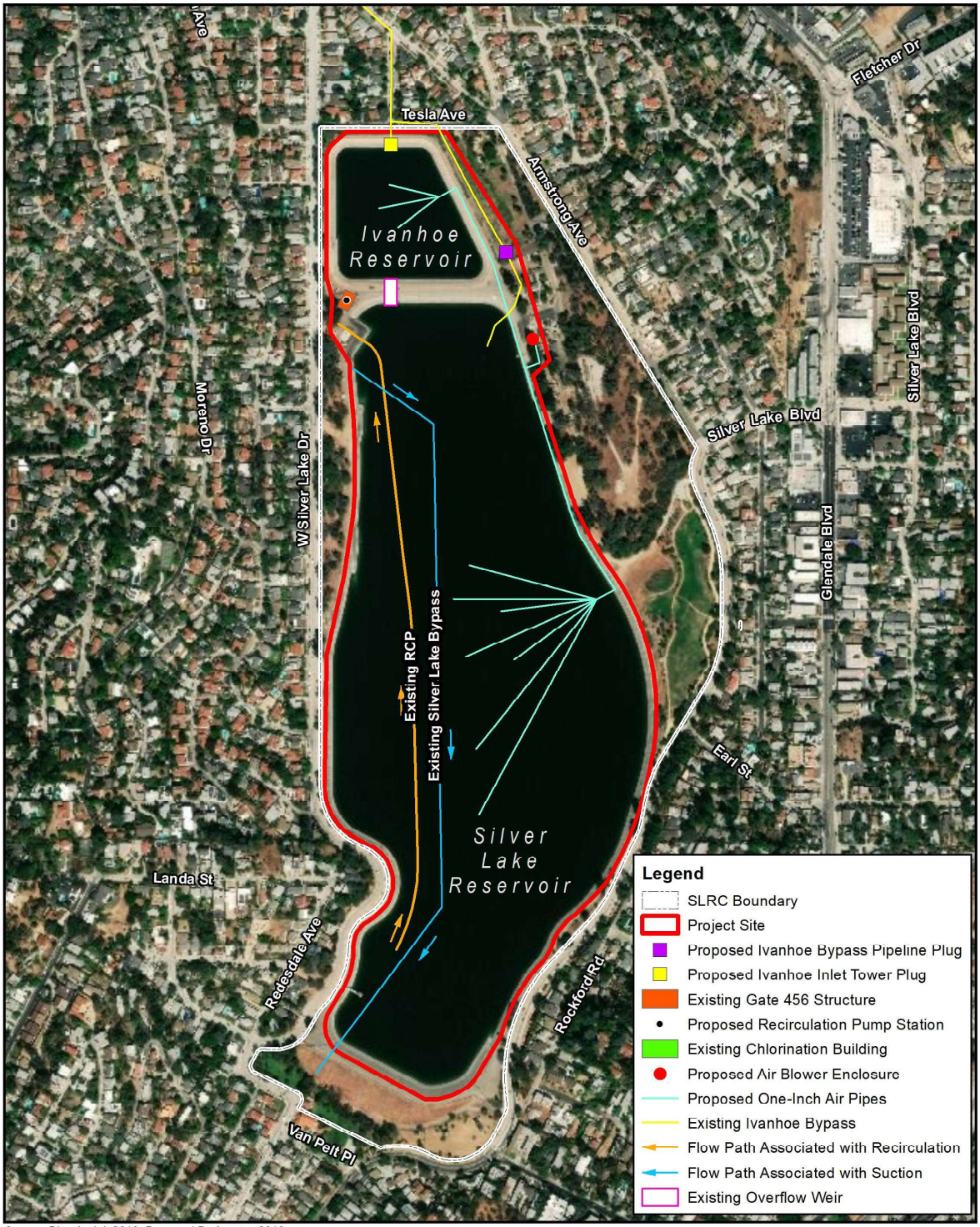
Figure 1
Regional Map

Source: Esri, 2020; Prepared By AECOM, 2020.

0 250 500 1,000 Feet

SLRC Boundary
Project Site

Figure 2
Project Location Map



Source: Bing Aerial, 2019; Prepared By Aecom, 2019.

0 250 500 1,000 Feet

Figure 3
Proposed Project
Aeration and Recirculation System

Phase 1 would include installation of an aeration system consisting of air blowers, air piping to each of the reservoirs, bubble plume system diffusers in each of the reservoirs, and aftercoolers. Two air blowers would be installed for each reservoir, including one in continuous operation and one to serve as a backup. The air blowers would be housed in an enclosure with ventilation and sound insulation. The air blower package enclosure would be located inside an existing chlorination building in the northeast portion of the SLRC between the two reservoirs.

Phase 2 would include the installation of a recirculation system consisting of a recirculation pump station, recirculation piping, and inflow from Ivanhoe Reservoir to Silver Lake Reservoir via the existing overflow weir. Additionally, two concrete plugs and approximately 400 feet of new recirculation piping would be installed within Ivanhoe Reservoir. The concrete plugs would be installed at the existing Ivanhoe Bypass and Ivanhoe Inlet Tower. The recirculation pump equipment would be installed at the existing Gate 456 structure, which is a fenced gate structure on the northwest corner of Silver Lake Reservoir that was historically used for water bypass when both Silver Lake and Ivanhoe Reservoirs were connected to the potable water system. Two submersible recirculation pumps would be installed along the depths of both Silver Lake and Ivanhoe Reservoirs and within the Gate 456 structure, with one pump on duty and the other on standby during normal operations. Both pumps would have the flexibility to operate simultaneously under special conditions. Suction intake would be located at the south end of the Silver Lake Reservoir along the existing Silver Lake Bypass pipeline and discharge would occur at the north end of Ivanhoe Reservoir. The recirculation piping would be connected to the recirculation pump to transfer water from Silver Lake Reservoir to Ivanhoe Reservoir over a partition wall within the Gate 456 structure. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs.

Construction Activities and Schedule

Construction of Phase 1 is anticipated to begin in November 2020 and take approximately 13 months to complete, concluding in December 2021. Construction of Phase 2 is anticipated to begin at the end of Phase 1 and take approximately 16 months to complete. Construction activities would occur Mondays through Friday from 7:00 a.m. to 3:00 p.m. Construction vehicle access would be available via the existing driveway at the northeastern corner of the SLRC near the intersection of Tesla Avenue and Armstrong Avenue. It is anticipated that haul trucks and construction workers would travel south to the project site from Sun Valley using Interstate 5 (I-5), then travel south on Riverside Drive to Glendale Boulevard, and then west on Lakewood Avenue to Armstrong Avenue. All construction activities would occur completely within the boundaries of the SLRC. Construction staging and laydown areas would also occur within the SLRC.

Phase 1 – Reservoir Aeration. Construction activities at each reservoir would consist of construction of the aeration header at the existing chlorination building, installation of the pre-assembled air blower enclosures for the aeration system, installation of the pipeline connections, and assembly of the diffusers. As previously discussed, the air blowers for the aeration system would be housed in a sound-insulated enclosure. Site preparation for the enclosure would include demolition of existing concrete slabs, installation of 40 polyvinyl chloride (PVC) conduits, and construction and casting of concrete and equipment pads. The concrete and equipment pads would require the site to be cleared, excavated up to three feet, and graded. The enclosure units would be installed within the existing chlorination building behind its concrete walls.

Following construction of the air blower enclosures, air pipes would be installed from the air blowers to diffuser systems at each reservoir. The pipes would be installed underground utilizing trenching and backfilling methods, with the exception of self-weighted lines that would extend within the reservoir.

Approximately 1,021 linear feet of pipeline would be required for Ivanhoe Reservoir and approximately 1,076 linear feet of pipeline would be required for Silver Lake Reservoir. As previously discussed, the diffusers would consist of a diffuser and a manifold, which would be strategically placed across the reservoirs for

optimal aeration. After installation of the pipelines and diffuser systems, the existing control panel would be moved from the existing chlorination building to the newly constructed enclosures. The air blowers and associated piping and supports and ventilation system would be installed within the enclosure. Aftercoolers would be located outside of the enclosures, and a sunshade and would be constructed to protect the equipment.

It is anticipated that approximately 1,102 cubic yards of materials would be imported to the project site, including 684 cubic yards of crushed aggregate base, 78 cubic yards of asphalt, 98 cubic yards of concrete, and 233 cubic yards of slurry. Additionally, approximately 1,045 cubic yards of materials would be excavated and exported from the project site, including 982 cubic yards of soil, 35 cubic yards of asphalt, and 28 cubic yards of concrete. Materials required for construction would be stored on site, with the exception of asphalt and concrete. Construction of Phase 1 of the proposed project would require a total of approximately 277 truck trips consisting of 101 trips for imported materials, 88 trips for exported materials, and 88 additional haul truck trips.

The estimated daily average of on-site workers would consist of a peak of 29 workers per day. Construction worker vehicle trips would account for approximately 277 roundtrips for the duration of 13 months, with an average of approximately 22 roundtrips per month.

Construction activities for Phase 1 would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site. The estimated daily peak number of equipment on site would be three pieces with an average of two pieces. The estimated daily peak number of trucks on-site would be six trucks during the construction of the air blowers and enclosures and four trucks during installation of the pipelines, with a daily average of three trucks on site for the entire duration of Phase 1.

Phase 2 - Recirculation System. Construction activities for Phase 2 include installation of pipeline in Ivanhoe Reservoir, installation of concrete plugs at the existing Ivanhoe Bypass and Ivanhoe Inlet tower, demolition of the existing equipment in the Gate 456 structure, installation of a suction intake on the existing Silver Lake bypass pipeline, and construction of the recirculation pump station within the Gate 456 structure, including a partition wall. Demolition would involve removal of existing electrical and mechanical equipment and an existing concrete slab within the Gate 456 structure.

Prior to installation of the concrete plugs, the water from Ivanhoe Reservoir would be pumped into Silver Lake Reservoir. Following draining of the water, 400 linear feet of pipeline would be placed and casted with concrete within Ivanhoe Reservoir to recirculate water within this reservoir. The concrete plugs would be formed on-site, placed in the Ivanhoe Bypass and then the Ivanhoe Tower Inlet, and finished with additional concrete.

The recirculation pump station equipment would be located within the Gate 456 structure adjacent to the equipment enclosures associated with the Silver Lake Regulating Station. Construction activities for the recirculation pump station would include excavation up to four feet for a 15-foot by 27-foot duct bank, construction of 40 PVC conduits, casting equipment pads and concrete slabs for a 6-foot by 3-foot sized enclosure, installation of the control system, and connecting the control panel to the equipment and pipes. The pumps would be placed below-grade within a hydraulic structure, which would be shielded from view at the property line.

Approximately 100 feet of piping would be installed within the Gate 456 structure, which would pump water from Silver Lake Reservoir over a partition wall to Ivanhoe Reservoir. Inflow from Ivanhoe Reservoir to Silver Lake Reservoir would occur via the existing weir over the Silver Lake North Dam between the reservoirs. Following installation of the piping, Ivanhoe Reservoir would be refilled via gravity through the existing Gate 456 structure.

It is anticipated that approximately 167 cubic yards of materials would be imported to the project site consisting of 21 cubic yards of crushed aggregate base, 5 cubic yards of asphalt, 141 cubic yards of concrete, and 8 cubic yards of slurry. Additionally, approximately 64 cubic yards of materials would be exported from the project site consisting of 35 cubic yards of soil, 2 cubic yards of asphalt, and 27 cubic yards of concrete. Materials required for construction, except for asphalt and concrete, would be stored on site. Construction of Phase 2 of the proposed project would require a total of approximately 81 truck trips consisting of 45 trips for imported materials, 8 trips for exported materials, and 28 additional haul truck trips.

The estimated daily peak number of on-site workers would be 22 workers. Construction worker vehicle trips would account for approximately 278 roundtrips for the duration of 16 months, with an average of approximately 18 roundtrips per month.

Construction activities for Phase 2 of the proposed project would require approximately 10 pieces of equipment, including an asphalt paver, backhoe loader, barge, butt fusion machine, crane, front end loader, fork lift, generator, roller, and vibrating plate as well as maintenance and dump trucks. All equipment would be stored on site. The estimated daily peak number of equipment on site would be 3 pieces with an average of 2 pieces. The estimated daily peak number of trucks on site would be 6 trucks with a daily average of 3 trucks on site for the entire duration of Phase 2.

Noise and Vibration Topical Information

The standard unit of measurement for noise is the decibel (dB). The human ear is not equally sensitive to sound at all frequencies. The A-weighted scale, abbreviated dBA, reflects the normal hearing sensitivity range of the human ear. On this scale, the range of human hearing extends from approximately 3 to 140 dBA. The noise analysis discusses sound levels in terms of Equivalent Noise Level (L_{eq}). L_{eq} is the average noise level on an energy basis for any specific time period. The L_{eq} for one hour is the energy average noise level during the hour. The average noise level is based on the energy content (acoustic energy) of the sound. L_{eq} can be thought of as the level of a continuous noise which has the same energy content as the fluctuating noise level. The equivalent noise level is expressed in units of dBA.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," decreases by approximately 6 dBA over hard surfaces (e.g., reflective surfaces such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level is 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet over a hard surface.

Noise generated by a mobile source decreases by approximately 3 dBA over hard surfaces and 4.8 dBA over soft surfaces for each doubling of the distance. Generally, noise is most audible when the source is in a direct line-of-sight of the receiver. Barriers, such as walls, berms, or buildings that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier. However, if a barrier is not sufficiently high or long to break the line-of-sight from the source to the receiver, its effectiveness is greatly reduced.

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and may evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would likely cause a negative community reaction.

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration can be a serious concern, causing buildings to shake and rumbling sounds to be heard. In contrast to noise, vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of vibration are trains, buses on rough roads, and construction activities, such as rock blasting, pile driving, and heavy earth-moving equipment. High levels of vibration may cause physical personal injury or damage to buildings. However, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that may affect concentration or disturb sleep. In addition, high levels of vibration may damage fragile buildings or interfere with equipment that is highly sensitive to vibration (e.g., electron microscopes).

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings and is usually measured in inches per second. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The VdB acts to compress the range of numbers required to describe vibration.[1]

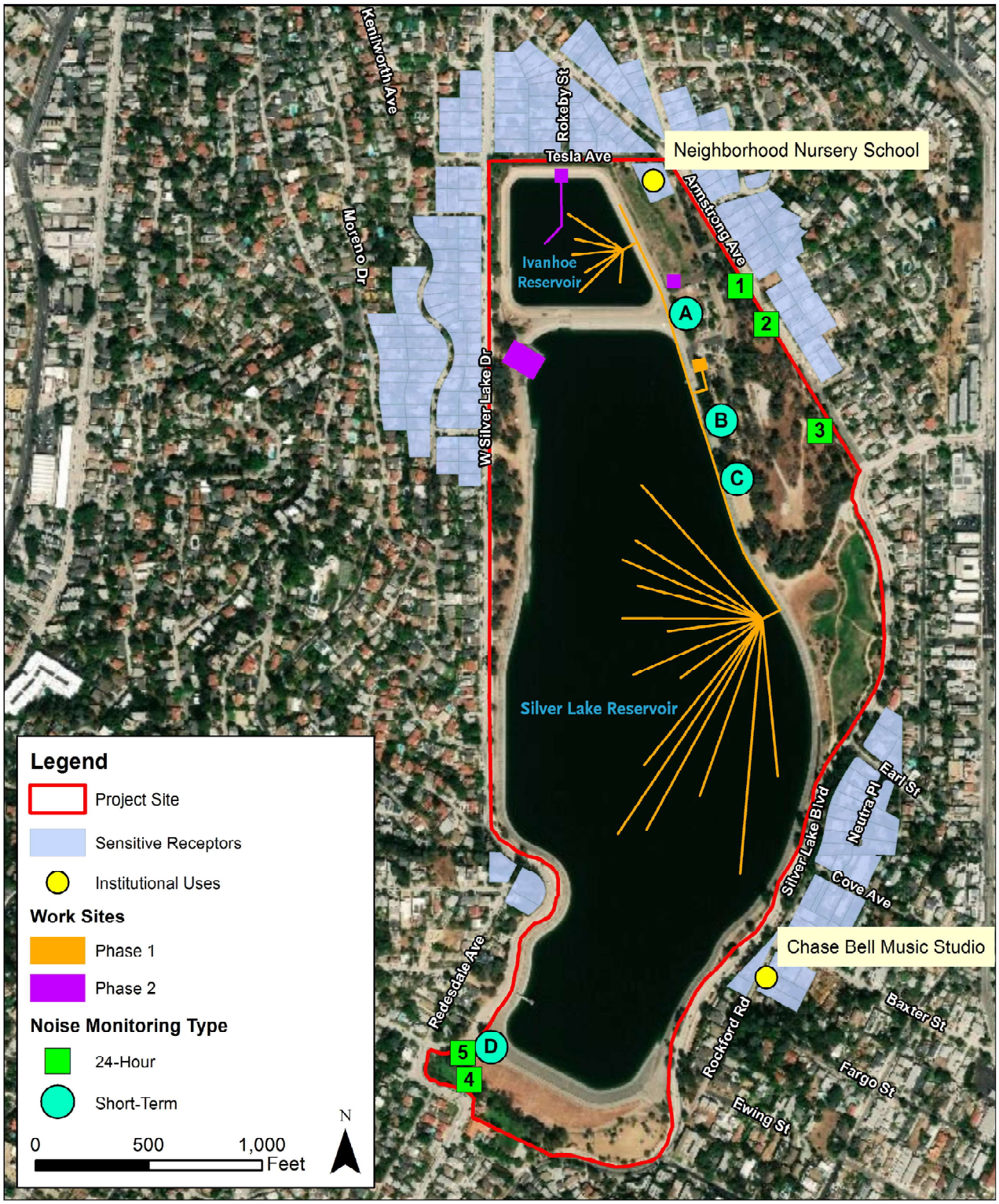
Existing Setting

The area surrounding the SLRC is characterized by low-rise single and multi-family residential structures with various commercial uses located along busier roadways in the neighborhood. As shown in Figure 5, sensitive receptors are located within 500 feet of proposed construction activities. Sensitive receptors include residences, Neighborhood Nursery School, and Chase Bell Music Studio.

LADWP, with support from Environmental Science Associates, conducted a sound level survey at Silver Lake Reservoir in anticipation of planned equipment installation activities within the reservoir. Noise measurements were taken at nine locations. Four of the meter locations (A through D) were in the immediate vicinity of the planned locations for the pump station (two separate locations), compressor unit, and mobile office trailers. Five of the meter locations were along the perimeter of the reservoir, all with direct lines of sight to the areas with planned construction activities. Residential houses were located across the street from the meter locations, at distances of approximately 35 feet. Noise monitoring locations and sensitive receptors are shown in **Figure 4**.

Weekday noise measurements for Sites 1 through 5, as shown in **Table 1**, were taken on Thursday, October 19, 2017, Tuesday, October 24, 2017, and Thursday, October 26, 2017 over a 24-hour period. Weekend measurements for Sites 1 through 5, are shown in **Table 2**, were taken on Saturday October 28, 2017 for two four-hour periods. Measurements for sites A through D, are shown in **Table 3**, were taken on Thursday, October 19, 2017, Tuesday, October 24, 2017, and Thursday, October 26, 2017.

[1] FTA, *Transit Noise and Vibration Impact Assessment*, September 2018.



Source: TAHA, 2020.

Silver Lake and Ivanhow Reservoirs System Project
Noise & Vibration Study

TAHA 2018-034

LOS ANGELES DEPARTMENT OF WATER AND POWER

FIGURE 4

NOISE MONITORING LOCATIONS AND SENSITIVE RECEPTORS

TABLE 1: EXISTING AMBIENT NOISE LEVELS (WEEKDAY) PROJECT PERIMETER

Time Period	Hourly Noise Level (dBA, L_{eq})				
	Site 1	Site 2	Site 3	Site 4	Site 5
12:00 a.m. to 1:00 a.m.	66.1	50.8	48.6	46.3	47.8
1:00 a.m. to 2:00 a.m.	61.0	43.5	46.8	45.5	46.5
2:00 a.m. to 3:00 a.m.	59.4	42.2	45.0	43.7	56.5
3:00 a.m. to 4:00 a.m.	59.9	48.5	47.7	42.6	40.5
4:00 a.m. to 5:00 a.m.	59.9	42.9	44.3	49.1	40.6
5:00 a.m. to 6:00 a.m.	63.0	50.5	50.8	50.3	47.6
6:00 a.m. to 7:00 a.m.	55.2	52.4	54.1	54.6	53.7
7:00 a.m. to 8:00 a.m.	60.0	56.9	55.8	59.2	54.0
8:00 a.m. to 9:00 a.m.	60.3	57.3	55.6	59.5	56.3
9:00 a.m. to 10:00 a.m.	59.2	56.4	53.0	58.7	58.5
10:00 a.m. to 11:00 a.m.	58.0	55.0	53.0	57.2	70.2
11:00 a.m. to 12:00 p.m.	58.7	55.3	52.0	55.8	53.7
12:00 p.m. to 1:00 p.m.	59.8	56.0	52.7	57.6	53.5
1:00 p.m. to 2:00 p.m.	59.7	55.4	51.8	55.5	53.4
2:00 p.m. to 3:00 p.m.	60.0	56.3	52.9	58.6	54.9
3:00 p.m. to 4:00 p.m.	60.9	56.7	52.7	55.9	54.9
4:00 p.m. to 5:00 p.m.	62.3	58.3	53.1	56.7	53.9
5:00 p.m. to 6:00 p.m.	62.9	58.7	54.7	57.4	54.1
6:00 p.m. to 7:00 p.m.	61.8	58.1	54.5	57.9	53.5
7:00 p.m. to 8:00 p.m.	59.3	55.3	53.0	56.5	52.3
8:00 p.m. to 9:00 p.m.	58.8	54.7	52.8	54.9	53.2
9:00 p.m. to 10:00 p.m.	56.2	52.4	51.3	53.9	51.7
10:00 p.m. to 11:00 p.m.	57.0	52.6	52.3	54.1	50.3
11:00 p.m. to 12:00 a.m.	59.0	58.4	50.5	50.8	48.9

SOURCE: LADWP, *Silverlake Baseline Sound Level Survey*, January 2018.

TABLE 2: EXISTING AMBIENT NOISE LEVELS (WEEKEND) PROJECT PERIMETER

	Hourly Noise Level (dBA, Leq)				
Time Period	**Site 1**	**Site 2**	**Site 3**	**Site 4**	**Site 5**
12:00 a.m. to 1:00 a.m.	66.1	50.8	48.6	46.3	47.8
1:00 a.m. to 2:00 a.m.	61.0	43.5	46.8	45.5	46.5
2:00 a.m. to 3:00 a.m.	59.4	42.2	45.0	43.7	56.5
3:00 a.m. to 4:00 a.m.	59.9	48.5	47.7	42.6	40.5
4:00 a.m. to 5:00 a.m.	59.9	42.9	44.3	49.1	40.6
5:00 a.m. to 6:00 a.m.	46.0	43.7	46.1	44.9	45.4
6:00 a.m. to 7:00 a.m.	48.3	45.8	48.2	46.6	48.2
7:00 a.m. to 8:00 a.m.	56.6	53.9	54.2	51.1	53.3
8:00 a.m. to 9:00 a.m.	56.8	54.3	52.7	-	55.0
9:00 a.m. to 10:00 a.m.	59.3	55.9	54.2	-	60.7
10:00 a.m. to 11:00 a.m.	-	-	-	-	-
11:00 a.m. to 12:00 p.m.	-	-	-	-	-
12:00 p.m. to 1:00 p.m.	-	-	-	-	-
1:00 p.m. to 2:00 p.m.	-	-	-	-	-
2:00 p.m. to 3:00 p.m.	-	-	-	-	-
3:00 p.m. to 4:00 p.m.	-	-	-	-	-
4:00 p.m. to 5:00 p.m.	-	-	-	-	-
5:00 p.m. to 6:00 p.m.	-	-	-	-	-
6:00 p.m. to 7:00 p.m.	59.5	56.5	53.9	51.9	55.9
7:00 p.m. to 8:00 p.m.	57.6	54.5	54.9	50.4	53.7
8:00 p.m. to 9:00 p.m.	58.1	56.5	53.7	52.1	54.7
9:00 p.m. to 10:00 p.m.	54.7	52.6	52.8	51.4	55.0
10:00 p.m. to 11:00 p.m.	59.5	56.5	53.9	51.9	55.9
11:00 p.m. to 12:00 a.m.	57.6	54.5	54.9	50.4	53.7

- Data not collected
SOURCE: LADWP, *Silverlake Baseline Sound Level Survey*, January 2018.

TABLE 3: EXISTING AMBIENT NOISE LEVELS (WEEKDAY) PROJECT SITE

	Hourly Noise Level (dBA, Leq)			
Time Period	**Site A**	**Site B**	**Site C**	**Site D**
Daytime Range (7:00 a.m. to 10:00 p.m.)	47.4 to 48.8	43.8 to 62.1	45.1 to 64.2	50.6 to 55.7
Nighttime Range (10:00 p.m. to 7:00 a.m.	49.1 to 66.4	51.7 to 53.5	45.3 to 50.9	46.3 to 53.0

SOURCE: LADWP, *Silverlake Baseline Sound Level Survey*, January 2018.

Regulatory Framework

Noise

Federal. The Noise Control Act of 1972 established programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, the United States Environmental Protection Agency (USEPA) determined that subjective issues such as noise would be better addressed at local levels of government, thereby allowing more individualized control for specific issues by designated federal, state, and local government agencies. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to specific federal agencies, and state and local governments. However, noise control guidelines and regulations contained in the USEPA rulings in prior years remain in place.

State. The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control are not applicable to planning efforts, nor are these areas typically subject to CEQA analysis.

Local. The City of Los Angeles has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. Regarding construction, Los Angeles Municipal Code (LAMC) Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) states that no construction or repair work shall be performed between the hours of 9:00 p.m. and 7:00 a.m. on Monday through Friday since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment, or other place of residence. Further, no person, other than an individual home owner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday, nor at any time on any Sunday or on a federal holiday.

Chapter XI (Noise Regulation) of the LAMC addresses sources of noise other than construction activities. Chapter XI is intended to prohibit unnecessary, excessive and annoying noises from all sources within the City. A noise level increase from certain regulated noise sources of 5 dBA over the existing or presumed ambient noise level at an adjacent property line is considered a violation of the Noise Regulations. The 5-dBA increase above ambient is applicable to City-regulated noise sources (e.g., mechanical equipment – LAMC Section 112.02), and it is applicable any time of the day.

LAMC Section 112.02 (Air Conditioning, Refrigeration, Heating, Pumping, Filtering Equipment) requires that any heating, ventilation, and air conditioning (HVAC) system within any zone of the City not cause an increase in ambient noise levels on any other occupied property or if a condominium, apartment house, duplex, or attached business, within any adjoining unit to exceed the ambient noise level by more than 5 dBA.

LAMC Section 112.04 (Powered Equipment Intended for Repetitive Use in Residential Areas and Other Machinery, Equipment, and Devices) specifies that no person shall operate any lawn mower, backpack blower, lawn edger, riding tractor, or any other machinery, equipment, or other mechanical or electrical device, or any hand tool which creates a loud, raucous or impulsive sound, within any residential zone or within 500 feet of a residence between the hours of 10:00 p.m. and. 7:00 a.m. of the following day.

LAMC Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above

noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise-reduction device or techniques during the operation of equipment.

LAMC Section 116.01 (Loud, Unnecessary, and Unusual Noise) states that it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

Vibration

The City has not established significance thresholds related to vibration. In the absence of City thresholds, Federal Transit Administration (FTA) guidance may be used to assess the potential for vibration-related damage and annoyance.[2] For damage, the impact criteria are established based on the structural foundation of the potentially impacted building. Site visits indicate that the buildings near the project site are constructed with non-engineered timber and masonry. Vibration levels that exceed a PPV of 0.3 inches per second could potentially damage these types of buildings. The most stringent annoyance criteria related to annoyance is 65 VdB for buildings subject to frequent vibration events (e.g., multiple equipment passbys). The frequent event annoyance criteria for residences and institutional land uses with primarily daytime use are 72 VdB and 75 VdB, respectively.

Significance Thresholds

Noise

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 noise or vibration in the context of the Appendix G Environmental Checklist criteria of the CEQA Guidelines. Implementation of the proposed project may result in a significant environmental impact related to noise and vibration if the proposed project would result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
b) Generation of excessive ground-borne vibration or ground-borne noise levels; and/or
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

The proposed project would exceed the local standards and substantially increase temporary construction noise levels if construction activities would occur within 500 feet of a noise-sensitive use and outside the hours allowed in the LAMC. The allowable hours of construction in the LAMC include 7:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 6:00 p.m. on Saturday. In addition, the LAMC states that equipment noise levels should not exceed 75 dBA L_{eq} at 50 feet unless technically infeasible. For permanent operational noise, a significant impact would result if the proposed project would increase noise levels at sensitive receptors by 5 dBA.

[2] FTA, *Transit Noise and Vibration Impact Assessment*, September 2018.

Vibration

The construction-related vibration analysis considers the potential for building damage and annoyance. Maximum vibration levels were assessed based frequent vibration events happening more than 70 times in one day, which would be consistent with the movement of construction equipment. The proposed project would result in a significant construction or operational vibration impact if:

- Vibration levels would exceed 0.2 inches per second at non-historic structures.
- Vibration levels would exceed 72 VdB at residences and building where people sleep; and/or
- Vibration levels would exceed 65 VdB at sensitive buildings, such as recording studios.

Methodology

Noise

The noise and vibration analysis consider construction and operational sources. Noise levels associated with typical construction equipment were obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM).[3] This model predicts noise from construction based on a compilation of empirical data and the application of acoustical propagation formulas. Maximum equipment noise levels were adjusted based on anticipated percent of use. Combined construction activity noise levels were estimated by combining anticipated equipment for each activity using RCNM. The projected noise level during the construction period at receptors was calculated by (1) making a distance adjustment to the construction source sound level and (2) logarithmically adding the adjusted construction noise source level to the ambient noise level.

According to Caltrans guidance, air temperature and humidity affect molecular absorption differently depending on the frequency spectrum and can vary significantly over long distances in a complex manner. Molecular absorption in air also reduces noise levels with distance. According to Caltrans, this process only accounts for about 1 dBA per 1,000 feet, which is an inaudible and negligible difference in noise levels. Noise levels have been estimated using a decrease of 6 dBA over hard surfaces for each doubling of the distance. The methodology and formulas obtained from the Caltrans Technical Noise Supplement can be viewed below.

$$(1)\ \text{Noise Distance Attenuation Formula: } dBA_2 = dBA_1 + C \times LOG_{10}(D_1/D_2)$$

Where:

dBA_1 = *Noise level at the reference distance of 50 feet*

dBA_2 = *Noise level at the receptor*

C = Coefficient for hard ground or soft ground

Hard ground C = 20

Soft ground C = 25

D_1 = *Reference distance (50 feet)*

D_2 = *Distance from source to receptor (measured distance)*

[3]FHWA, *Roadway Construction Noise Model*, Version 1.1, August 2008.

(2) Logarithmic Noise Level Addition Formula: $Ns = 10*LOG_{10}((10^{(N1/10)})+(10^{(N2/10)}))$

Where:

Ns = Noise level Sum

N1 = Noise level one

N2 = Noise level two

Vibration

Vibration levels were estimated using example vibration levels and propagation formulas provided by FTA.[4] The methodology and formulas obtained from the FTA Transit Noise and Vibration Assessment guidance can be viewed below. Vibration damage is assessed using formula (3) and vibration annoyance is assessed using formula (4).

(3) *Vibration Damage Attenuation Formula: $PPV_{equip} = PPV_{ref} x (25/D)^{1.5}$*

Where:

PPV_{equip} = Peak particles velocity in inches per second of the equipment adjusted for distance

PPV_{ref} = Reference vibration level in inches per second at 25 feet

D = Distance from the equipment to the receptor in feet

(4) *Vibration Annoyance Attenuation Formula: $Lv_{equip} = Lv_{ref} – 30 x LOG (D/25)$*

Where:

Lv_{equip} = Vibration level in vibration decibels of equipment adjusted for distance

Lv_{ref} = Reference vibration level in vibration decibels at 25 feet

D = Distance from the equipment to the receptor in feet

Impact Assessment

a) Would the proposed project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less-than-Significant Impact)

Construction

Noise impacts from construction of the proposed project would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers. Construction activities typically require the use of numerous pieces of noise-generating equipment. Typical noise levels from various types of equipment that would be used during construction are listed in **Table 4**. Noise levels from individual pieces of equipment typically are between 71.0 and 79.4 dBA L_{eq} at 50 feet.

[4]FTA, *Transit Noise and Vibration Impact Assessment*, May 2006.

TABLE 4: NOISE LEVEL RANGES OF TYPICAL CONSTRUCTION EQUIPMENT	
Construction Equipment	**Noise Level at 50 feet (dBA)**
Barge	75.0
Backhoe	73.6
Crane	72.6
Dump Truck	72.5
Front End Loader	75.4
Generator	77.6
Gradall	79.4
Paver	74.2
Pickup Truck	71.0
Roller	73.0
Compactor (vibrating plate)	76.2
SOURCE: Federal Highway Administration, *Roadway Construction Noise Model*, Version 1.1, 2008.	

To more accurately characterize construction-period noise levels, the noise levels shown in **Table 5** take into account the likelihood that multiple pieces of construction equipment would be operating simultaneously and the typical overall noise levels that would be expected. Equipment utilized during both Phases 1 and 2 would be similar and therefore the combined noise levels would be representative of each phase. When considered as an entire process with multiple pieces of equipment, on-land construction would generate the loudest noise level of approximately 82.2 dBA L_{eq} at 50 feet. Barge construction activities would generate a noise level of approximately 81.4 dBA L_{eq} at 50 feet.

TABLE 5: PHASED CONSTRUCTION NOISE LEVELS	
Construction Method	**Noise Level at 50 feet (dBA, L_{eq})**
SITE PREPARATION	
Backhoe	73.6
Paver	74.2
Compactor (vibrating plate)	76.2
Site Preparation Combined	79.6
EXCAVATION/MATERIALS EXPORT	
Backhoe	73.6
Front End Loader	75.4
Dump Truck	72.5
Excavation/Materials Export Combined	78.8
ON-LAND CONSTRUCTION	
Backhoe	73.6
Gradall	79.4
Generator	77.6
On-Land Construction Combined	82.2
BARGE CONSTRUCTION	
Barge	75.0
Crane	72.6
Gradall	79.4
Barge Construction Combined	81.4
SOURCE: Federal Highway Administration, *Roadway Construction Noise Model*, Version 1.1, 2008.	

Tables 6 and **7** present the estimated noise levels at the sensitive receptors nearest to the project site for Phases 1 and 2, respectively. Construction activities would occur Monday through Friday, and workers would typically be onsite for eight hours per day from 7:00 a.m. to 3:00 p.m. No work outside of these hours, or work on weekends or national holidays, is anticipated. Construction activity would therefore comply with the allowable hours of construction in the LAMC, including 7:00 a.m. to 9:00 p.m. Monday through Friday, 8:00 a.m. to 6:00 p.m. on Saturday, and no construction activity on Sundays or federal holidays. The LAMC limits equipment noise levels to 75 dBA L_{eq} at 50 feet unless technically infeasible. Phase 2 construction activities would not generate significant noise levels. However, Phase 1 construction activities would potentially generate significant noise levels at the Neighborhood Nursery School. Therefore, without mitigation, the proposed project would result in a significant impact related to on-site construction noise.

TABLE 6: TYPICAL CONSTRUCTION NOISE LEVELS AT RECEPTORS (PHASE 1)

Sensitive Receptor	Distance (feet) /a/	Existing Noise Level (dBA) /b/	Project Noise Level (dBA)
ON-LAND CONSTRUCTION			
Neighborhood Nursery School east of the proposed one-inch air pipes	100	56.7	76.2
Residences along Armstrong Ave. east of the proposed air blower enclosure	350	56.7	65.9
Residences along Armstrong Ave. east of the proposed one-inch air pipes	450	56.7	64.0
BARGE CONSTRUCTION			
Residences along Tesla Avenue north of proposed one-inch air pipes in Ivanhoe Reservoir	280	56.7	66.9
Neighborhood Nursery School east of the proposed one-inch air pipes in Ivanhoe Reservoir	250	56.7	67.8
Residences along Silver Lake Blvd. between Earl St. and Baxter St. east of the proposed one-inch air pipes in Silver Lake Reservoir	350	57.2	65.2
Residences along Silver Lake Dr. to the west of the proposed one-inch air pipes in Silver Lake Reservoir	400	57.2	64.3
Residences along Armstrong Ave. to the east of the proposed one-inch air pipes in Ivanhoe Reservoir	500	56.7	62.7
Chase Bell Music Studio south of the proposed one-inch air pipes in Ivanhoe Reservoir /c/	500	57.2	60.1

/a/ Measured from the work area to the nearest property boundary.
/b/ The average hourly noise level for weekday daytime (7:00 a.m. to 9:00 p.m.) activities.
/c/ Includes a 4.5 dB reduction for intervening rows of buildings.
SOURCE: TAHA, 2020.

TABLE 7: TYPICAL CONSTRUCTION NOISE LEVELS AT RECEPTORS (PHASE 2)

Sensitive Receptor	Distance (feet) /a/	Existing Noise Level (dBA) /b/	Noise Level at Sensitive Receptor (dBA)
ON-LAND CONSTRUCTION			
Residences along Silver Lake Dr. to the west of the proposed recirculation pump	120	57.2	74.7
Residences along Kenilworth Ave. to the west of the proposed recirculation pump	250	57.2	64.6
Neighborhood Nursery School north of the proposed Ivanhoe Bypass Pipeline Plug	330	56.7	66.3
Residences along Armstrong Ave. to the east of the proposed Ivanhoe Bypass Pipeline Plug	290	56.7	67.3
BARGE CONSTRUCTION			
Residences along Tesla Avenue to the north of the proposed Ivanhoe Inlet Tower Plug	120	56.7	73.9
Residences along Silver Lake Dr. to the west of the proposed recirculation piping in Ivanhoe Reservoir	300	57.2	66.4
Residences along Armstrong Ave. to the east of the proposed recirculation piping in Ivanhoe Reservoir	370	56.7	64.8
Residences along Silver Lake Dr. to the west of the proposed recirculation piping in Ivanhoe Reservoir	500	57.2	62.8

/a/ Measured from the work area to the nearest property boundary.
/b/ The average hourly noise level for weekday daytime (7:00 a.m. to 9:00 p.m.) activities.
SOURCE: TAHA, 2020.

In addition to on-site construction activities, noise would be generated off-site by construction-related trucks. Construction of Phase 1 of the proposed project would require a total of approximately 277 truck trips consisting of 101 trips for imported materials, 88 trips for exported materials, and 88 additional haul truck trips. Construction of Phase 2 of the proposed project would require a total of approximately 81 truck trips consisting of 45 trips for imported materials, 8 trips for exported materials, and 28 additional haul truck trips. Daily truck trips are not anticipated to be more than 10 trips per day. It is anticipated that haul trucks and construction workers would travel south to the project site from Sun Valley using Interstate 5, then travel south on Riverside Drive to Glendale Boulevard, and then west on Lakewood Avenue to Armstrong Avenue. A doubling of traffic volume is typically needed to audibly increase noise levels along a roadway segment. According to the City of Los Angeles Department of Transportation, Glendale Boulevard experiences approximately 31,912 vehicle trips a day.[5] Lakewood Boulevard experiences approximately 2,067 vehicle trips a day.[6] An additional 10 truck trips per day would not double the volume on any roadway segment. It is not anticipated that off-site vehicle activity would audibly change average daily noise levels due to the low volume of haul truck trips per day. The proposed project would not result in a short-term and temporary noise impact from construction trucks.

[5]City of Los Angeles Department of Transportation, *24 Hours Traffic Volume Glendale Boulevard at Fletcher Drive*, October 8, 2014.
[6]City of Los Angeles Department of Transportation, *24 Hours Traffic Volume Lakewood Avenue at Angus Street*, October 3, 2013.

Operations

Sources of operational noise include air blowers system and pumps. The bubble plume aeration system and recirculation pipe system are passive non-noise generating project components and have not been assessed further. The air blower system would be housed in an enclosure with ventilation and sound insulation. The air blower package enclosure would be located inside an existing chlorination building in the northeast portion of the SLRC between the two reservoirs The aftercoolers would be located adjacent to the existing chlorination building behind a concrete wall, and would remove excess heat produced by the aeration system.

One pump would be located within the Gate 456 structure and two pumps would be submerged under water. The submerged pumps have no potential to generate audible noise. Pumps would generate noise similar to a low hum and would be located in a 50-foot by 60-foot sized enclosure. All three of the pumps would be placed below-grade within a hydraulic structure, which would be shielded from view at the property line. Pump noise would not be audible at existing residences.

A single air blower system produces a noise level of 74.0 dBA L_{eq} at three feet. Aftercoolers would generate a noise level of approximately 75.0 dBA at three feet. Two air blowers would be operating continuously at anytime with two additional air blowers as backups. Equipment noise related to the two air blower systems and the aftercooler system operating in tandem would be approximately 79.1 dBA L_{eq}. However, noise levels decrease with distance from the noise source. As such, due to the distance of the equipment, noise levels at the sensitive receptors would decrease to a point that they would be similar to existing conditions. **Table 8** shows mechanical equipment noise levels at the nearest sensitive land uses. Project related equipment noise would result in an increase in noise that would be less than 1.0 dBA. This would be in compliance with the requirements of LAMC Section 112.02, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise level on the premises of other occupied properties by more than five dB. Therefore, the proposed project would result in a less-than-significant impact related to stationary noise.

TABLE 8: AIR BLOWER SYSTEM NOISE LEVEL

Sensitive Receptor	Distance (feet)	Existing Ambient (dBA, L_{eq}) /a/	Project Noise Level (dBA, L_{eq})	Existing + Project Noise Level (dBA L_{eq})	Increase (dBA, L_{eq})	Exceed LAMC 5 dB Threshold?
Residences to the east along Armstrong Ave.	350	53.5	27.5	53.5	0.0	No
Neighborhood Nursey School to the north	750	53.5	19.2	53.5	0.0	No
Residences to the north along Tesla Dr.	960	53.5	16.5	53.5	0.0	No
Residences to the west along Silver Lake Dr.	980	52.5	16.3	52.5	0.0	No
Residences to the south along Silver Lake Blvd.	1,500	52.5	11.7	52.5	0.0	No

/a/ Average noise level in dBA L_{eq} over 24-hour period.
SOURCE: TAHA, 2020.

Periodic maintenance activities may be required to for maintenance of the aeration and recirculation system. vehicle trips related to periodic maintenance would be infrequent and would not audibly change existing noise levels. Furthermore, any equipment and activity would be required to comply with the provisions of LAMC Section 112.04 (Powered Equipment Intended for Repetitive Use In Residential Areas and Other Machinery,

Equipment, and Devices). The proposed project would also be required to comply with LAMC Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) and LAMC Section 116.01 (Loud, Unnecessary, and Unusual Noise), which would be enforced through the Los Angeles Police Department. The above analysis demonstrates that proposed project would not generate excessive noise levels that would conflict with City standards. Therefore, the proposed project would result in a less-than-significant impact related to operational noise.

Mitigation Measures

N1 Construction equipment shall be properly maintained and equipped with mufflers.

N2 Rubber-tired equipment shall be used rather than tracked equipment when feasible.

N3 Equipment shall be turned off when not in use for an excess of five minutes, except for equipment that requires idling to maintain performance.

N4 A public liaison shall be appointed for project construction will be responsible for addressing public concerns about construction activities, including excessive noise. As needed, the liaison shall determine the cause of the concern (e.g., starting too early, bad muffler) and implement measures to address the concern.

N5 Prior to initiating construction activity, LADWP shall coordinate with the site administrator for the Neighborhood Nursery School to discuss construction activities that generate high noise levels. Coordination between the site administrator and LADWP shall continue on an as-needed basis throughout the construction phase of the project to mitigate potential disruption of classroom activities.

N6 The public shall be notified in advance of the location and dates of construction hours and activities.

Significance After Mitigation

Construction. Mitigation Measures **N1** through **N6** are designed to reduce construction noise levels. The equipment mufflers associated with Mitigation Measure **N1** would reduce construction noise levels by approximately 3 dBA. Mitigation Measures **N2** through **N6**, although difficult to quantify, would also reduce and/or control construction noise levels. **Table 9** shows mitigated noise levels for the Neighborhood Nursery School, which was the only significantly impacted land use. The implementation of Mitigation Measures **N1** through **N6** would reduce noise levels at the Neighborhood Nursery School to less than 75 dBA. Therefore, the proposed project would result in a less-than-significant impact related to construction noise with mitigation incorporated.

TABLE 9: MITIGATED CONSTRUCTION NOISE LEVELS (PHASE 1)

Sensitive Receptor	Distance (feet) /a/	Existing Noise Level (dBA) /b/	Attenuation (dBA) /c/	Noise Level at Sensitive Receptor (dBA)
ON-LAND CONSTRUCTION				
Neighborhood Nursery School east of the proposed one-inch air pipes	100	56.7	3	73.3

/a/ Measured from the work area to the nearest property boundary.
/b/ The average hourly noise level for weekday daytime (7:00 a.m. to 9:00 p.m.) activities.
/c/ Includes a 3-dB reduction for equipment mufflers.
SOURCE: TAHA, 2020.

Operations. No significant impacts have been identified related to operational noise. Therefore, no mitigation measures are required.

b) Would the proposed project result in generation of excessive ground-borne vibration or ground-borne noise levels? (Less-than-Significant Impact)

Construction

Construction activity can generate varying degrees of vibration, depending on the procedure and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of a construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, and to slight damage at the highest levels. In most cases, the primary concern regarding construction vibration relates to damage.

Construction equipment would be most similar to a large bulldozer, which would be used on the project site and produces a PPV of 0.089 inches per second at 25 feet.[7] Construction would occur within the boundaries of the SLRC and would be located at distances greater than 25 feet from the nearest off-site structures. Vibration levels were calculated at the nearest structures to each work site. As shown in **Table 10**, construction vibration associated with the proposed project would not exceed the 0.3 inches per second damage criterion. Therefore, the proposed project would result in a less-than-significant impact related to vibration damage.

TABLE 10: CONSTRUCTION VIBRATION LEVELS AT SENSITIVE RECEPTORS (DAMAGE)

Sensitive Receptor	Distance (feet) /a/	Vibration Level (Inches/Second)	Threshold (Inches/Second)	Exceed Threshold?
PHASE 1				
Neighborhood Nursery School east of the proposed one-inch air pipes	100	0.001	0.2	No
Residences along Armstrong Ave. east of the proposed air blower enclosure	350	0.002	0.2	No
PHASE 2				
Residences along Silver Lake Dr. to the west of the proposed recirculation pump	120	0.008	0.2	No

/a/ Measured from the project site to the nearest structure.
SOURCE: TAHA, 2020.

Vibration annoyance is another concern related to construction activity. However, perceptible vibration is not typically a concern for human health and is a common occurrence within the urban environment. Special uses such as research facilities and recording studios would be potentially impacted by construction vibration annoyance due to the presences of sensitive equipment (e.g., Chase Bell Music Studio). In addition to on-site construction activities, construction trucks on the roadway network have the potential to expose vibration-sensitive land uses. Rubber-tired vehicles, including trucks, rarely generate perceptible vibration.[8] It is not anticipated that project-related trucks would generate perceptible vibration adjacent to the roadway network.

[7]FTA, *Transit Noise and Vibration Impact Assessment*, September 2018.
[8]*Ibid.*

Table 11 shows that vibration levels would not exceed the annoyance criteria. Therefore, the proposed project would result in a less-than-significant impact related to vibration annoyance.

TABLE 11: CONSTRUCTION VIBRATION LEVELS AT SENSITIVE RECEPTORS (ANNOYANCE)

Sensitive Receptor	Distance (feet) /a/	Vibration Level (VdB)	Threshold (VdB)	Exceed Threshold?
PHASE 1				
Neighborhood Nursery School east of the proposed one-inch air pipes	100	69	72	No
Residences along Armstrong Ave. east of the proposed air blower enclosure	350	53	72	No
Chase Bell Music Studio	1,600	33	65	No
PHASE 2				
Residences along Silver Lake Dr. to the west of the proposed recirculation pump	120	67	72	No

/a/ Measured from the project site to the nearest structure.
SOURCE: TAHA, 2020.

Operations

The primary sources of operational vibration would include vehicles traveling to the project site for periodic maintenance. Vehicular movements would generate similar vibration levels as existing traffic conditions. The proposed project would not introduce any significant stationary sources of vibration that would be perceptible off the project site. Therefore, operational activity associated with the proposed project would result in a less-than-significant impact related to vibration.

Mitigation Measures

No significant impacts have been identified related to construction or operational vibration. Therefore, no mitigation measures are required.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the proposed project expose people residing or working in the project area to excessive noise levels? (No Impact)

The project site is not located within an airport land use plan or is it located two miles of a public airport or private airstrip. Therefore, no impact related to airport or airstrip noise would occur.

Mitigation Measures

No significant impacts have been identified related to the proposed project. Therefore, no mitigation measures are required.

References

California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

City of Los Angeles Department of Transportation, *24 Hours Traffic Volume Glendale Boulevard at Fletcher Drive*, October 8, 2014.

City of Los Angeles Department of Transportation, *24 Hours Traffic Volume Lakewood Avenue at Angus Street*, October 3, 2013.

Cowan, James P., *Handbook of Environmental Acoustics*, 1994.

Federal Highway Administration, *Roadway Construction Noise Model*, Version 1.1, 2008.

Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, September 2018.

Los Angeles Municipal Code, *Chapter XI (Noise Regulation)*, December 31, 2019.

Los Angeles Municipal Code, *Section 112.02 (Air Conditioning, Refrigeration, Heating, Pumping, Filter Equipment*, December 31, 2019.

Los Angeles Municipal Code, *Section 112.04 (Powered Equipment Intended for Repetitive Use in Residential Areas and Other Machinery, Equipment, and Devices)*, December 31, 2019.

Los Angeles Municipal Code, *Section 112.05 (Maximum Noise Level of Powered Equipment or Hand Powered Tools)*, December 31, 2019.

Los Angeles Municipal Code, *Section 116.01 (Loud, Unnecessary, and Unusual Noises)*, December 31, 2019.

Los Angeles Municipal Code, *Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited)*, December 31, 2019.

Universal Blower Pac Inc., *Model 3203-A4L3Cv2-A Qx-Series (3-Lobe) Blower*.