

temperatures rise into the higher warming range. (Implementing aggressive efficiency measures could lower this estimate).

Higher temperatures may require that the project consume more electricity for cooling. Additionally, more water may be needed for the landscaping. However, sea level rise won't impact the project because it's so far and high relative to the ocean.

Adaptation includes the responses to the changing climate and policies to minimize the predicted impacts (e.g., building better coastal defenses to sea level rise). Adaptation is not included in this report. It should be note that adaptation is not mitigation. Mitigation includes intervention or policies to reduce GHG emissions or to enhance the sinks of GHGs.

1.3 Emission Inventories

To put perspective on the emissions generated by a project and to better understand the sources of GHGs, it is important to look at emission inventories. The World Resources Institute has published a website with emission inventories by state and by country (<http://cait2.wri.org>). Table 2 lists the top ten GHG producing countries in 2013 with the quantity of GHG emissions and the percentage of total world emissions. Because total GHG emissions are largely dependent on the size of the country the amount of emissions per dollar of gross domestic product (GDP) and per person are presented as well. The total worldwide GHG emissions and emissions per GDP and per capita are provided as well. GHG emissions for California are presented at the bottom of the table for comparison.

Total world GHG emissions were 45,261 MMT CO₂EQ in 2013. China generated the highest GHG emissions with 26 percent of the total world emissions. Emissions from top four countries, China, United States, India, and Russian Federation are 51 percent of the world total emissions. China and the United States Account for 40 percent of the world total GHG emissions.

There are only seven countries, including the United States, with larger economies (as measured by GDP) than California and 33 countries with larger populations. There are 166 countries with higher GHG emissions per GDP than California and only 19 lower. Central Africa is highest with 36,409 MT CO₂EQ emissions per million dollars in GDP. There are 27 countries with higher emissions per capita than California. Kuwait has the highest emissions per capita at 54.5 MT CO₂EQ per person.

Table 2
Top Ten CO₂ Producing Nations in 2013

Country	Total GHG Emissions (MMT CO₂EQ)	Percent of World Total	GHG Emissions per GDP (MTCO₂EQ/\$ Million GDP)	GHG Emissions per Capita (MTCO₂EQ/person)
1. China	11,735	26%	1,511	8.6
2. United States	6,280	14%	397	19.8
3. India	2,909	6%	1,462	2.3
4. Russian Federation	2,199	5%	1,319	15.3
5. Japan	1,353	3%	240	10.6
6. Brazil	1,018	2%	422	5.0
7. Germany	894	2%	250	10.89
8. Indonesia	744	2%	830	3.0
9. Canada	738	2%	427	21.0
10. Mexico	733	2%	636	5.9
Rest of World	16,657	36%	-	-
World	45,261	-	637	6.3
California	456	1%	221.1	11.9

Source: World Resource Institute's Climate Data Explorer (<http://cait2.wri.org>)

Within the United States, California has the second highest level of GHG production with Texas having the highest. In 2013, only six states, New York, Rhode Island, Massachusetts, Connecticut, Vermont, New Hampshire and the District of Columbia, had lower GHG emissions per person than California. Only four states, New York, Rhode Island, Massachusetts, Connecticut and the District of Columbia had lower GHG emissions per GDP.

1.4 Sources of Greenhouse Gas in California

CARB categorizes GHG generation by source into five broad categories. The categories are:

- **Transportation** includes the combustion of gasoline and diesel in automobiles and trucks. Transportation also includes jet fuel consumption and bunker fuel for ships.
- **Agriculture and forestry** GHG emissions are composed mostly of nitrous oxide from agricultural soil management, CO₂ from forestry practice changes, methane from enteric fermentation, and methane and nitrous oxide from manure management.
- **Commercial and residential** uses generate GHG emissions primarily from the combustion of natural gas for space and water heating.
- **Industrial** GHG emissions are produced from many industrial activities. Major contributors include oil and natural gas extraction; crude oil refining; food processing; stone, clay, glass, and cement manufacturing; chemical manufacturing; and cement production. Wastewater treatment plants are also significant contributors to this category.
- **Electric generation** includes both emissions from power plants in California as well as power plants located outside of the state that supply electricity to the state.
- **Recycling and waste** includes primarily landfills.
- **High (GWP)** emissions consist of ozone depleting substance substitutes and electricity grid SF₆ losses.
- **Forestry** emissions are due to wildfires.

The relative amount of GHGs released from each of these categories in California in between 2000 and 2015. Most of California's GHGs are emitted by transportation sources, such as automobiles, trucks, and airplanes. In 2015, combustion of fossil fuels in the transportation sector contributed approximately 37 percent of the California GHG. This category was followed by the industrial sector (23 percent) and the electric power sector (including both in-state and out-of-state sources) (19 percent). It should be noted that prior to 2010 emissions from the electrical power sector were 2 to 23 MT CO₂EQ greater than industrial emissions. However, since 2010 electrical emissions have been 5 to 12 MT CO₂EQ lower than industrial emissions. This is a result of California's commitment to Residential and commercial activity accounted for approximately nine percent of the emissions.

1.5 Regulatory Framework

1.5.1 Federal Plans, Policies, Regulations, and Laws.

The federal government began studying the phenomenon of global warming as early as 1978 with the National Climate Protection Act, 92 Stat. 601, which required the President to establish a program to "assist the Nation and the world to understand and respond to natural and man-induced climate processes and their implications." The 1987 Global Climate Protection Act, Title XI of Pub. L. 100-204, directed the U.S. EPA to propose a "coordinated national policy on global climate change," and ordered the Secretary of State to work "through the channels of multilateral diplomacy" to coordinate efforts to address global warming. Further, in 1992, the United States ratified a nonbinding agreement among 154 nations to reduce atmospheric GHGs.

In 1999, a petition requested that EPA begin regulating greenhouse gasses. After taking extensive public comment, the EPA denied the petition in 2003. After lower courts denied petitions for review of EPA's decision, twelve states, several cities and environmental organizations sought further review in the Supreme Court. In their decision of *Massachusetts v. EPA* (Supreme Court Case 05-1120 April 2, 2007), the United State Supreme Court held that GHGs fall within the Clean Air Act's definition of an "air pollutant," and directed the EPA to consider whether GHGs are causing climate change. If so, the EPA must regulate GHG emissions from automobiles under the Clean Air Act. In April 2009, the EPA concluded that GHGs are a danger to public health and welfare, establishing a basis for GHG Regulation.

In September 2009, the EPA finalized a GHG reporting and monitoring program. This program requires facilities that emit more than 25,000 MT CO₂EQ to report their GHG emissions annually. In the most recent reporting year, 2013, 7,879 facilities in nine industry sectors reported direct emissions of 3.18 billion MT CO₂EQ, about half of the total greenhouse gas emissions in the United States.

In June 2013, the Obama Administration published a climate action plan with three key pillars: cutting carbon pollution emissions, preparing the country for the impacts of climate change, and leading international efforts to combat climate change and prepare for its impacts. The plan proposes cutting emissions under five general categories: (1) power generation, (2) transportation, (3) energy waste in homes, businesses, and factories, (4) specific GHGs (hydrofluorocarbons and methane), and (5) GHG emissions from federal government activities. The plan describes the activities that the administration has already undertaken to prepare for the impacts of climate change and proposes expanding these efforts in three major initiatives: (1) building stronger and safer communities and infrastructure, (2) protecting the economy and natural resources, and (3) using sound science to manage climate change impacts. The two key components to the administration's proposal to lead international efforts include working with other countries to take action to address climate change and international negotiations.

In September 2013, the EPA announced plans to adopt performance standards to limit GHG emissions from new power plants and June 2014, they announced a plan to reduce GHG emissions from existing power plants by 25 percent below 2005 levels in 2020 and 30 percent by 2030 as well as standards to limit emissions from modified and reconstructed power plants. In October 2014, the EPA announced a

supplemental proposal to adopt standards for existing power plants. Over 4 million public comments were received regarding these proposals. In January 2015, the EPA announced it would begin the regulatory process for proposing a federal plan to meet goals for cutting carbon pollution from existing power plants. At the same time, the EPA announced plans to issue final rules on a clean power plan for existing power plants and carbon pollution standards for new, modified and reconstructed power plants in the summer of 2015.

In March 2014, the Obama Administration released its Strategy to Reduce Methane Emissions as a part of its Climate Action Plan. This document describes several actions that the EPA and other federal agencies will take to reduce methane emissions from four source categories, landfills, coalmines, agriculture and oil and gas. Under this plan, the EPA will propose updated standards to reduce methane emissions from new landfills and take public comment on whether to update standards for existing landfills. The Interior Department's Bureau of Land Management will undertake rulemaking to develop a program for the capture and sale or disposal, of waste methane from mines on lands leased by the Federal government. The U.S. Department of Agriculture (USDA), EPA, and Department of Energy (DOE) in partnership with the dairy industry will release a "Biogas Roadmap" outlining strategies to reduce U.S. dairy sector greenhouse gas emissions by 25 percent in 2020.

The Strategy presents several measures to reduce methane emissions from oil and natural gas operations. The DOE and EPA will work with states that are the primary regulators of many aspects of oil and gas production and natural gas distribution, to provide technical assistance in support of state policy actions and to encourage broad adoption of proven mitigation strategies. The Strategy discusses how EPA regulations to address volatile organic compound (VOC) emissions, an ozone precursor, in natural gas production also reduce methane emissions. Further, the EPA has released a series of white papers on significant sources of methane emissions from oil and gas operations¹. The DOE will continue to work with stakeholders to reduce emission from natural gas systems and the EPA will bolster its voluntary Natural Gas STAR Program. The Bureau of Land Management will develop and draft rule to update the agencies requirements for venting and flaring of methane produced from Federal and Indian oil and gas leases. As a part of the Climate Action Plan, the DOE is preparing a Quadrennial Energy Review (QER) that will recommend actions that industry, and Federal and state governments can take to improve energy transmissions, storage, and distribution systems. The QER, slated for publication in spring of 2015, will evaluate methane abatement opportunities from the processing, transmission, storage, and distribution segments of the natural gas supply chain. In addition, the strategy calls for the Pipeline and Hazardous Materials Safety Administration will continue to monitor pipelines and require operators to eliminate leaks and prevent accidental methane releases. Finally, the DOE will support the development of new technologies to enable more cost-effective reductions through \$8 billion of loan guarantees for advanced fossil energy projects and a \$4.7 million DOE program to speed development of technologies for leak detection and monitoring, pipeline leak repair, smart pipeline sensors, and compressor controls.

¹ <http://www.epa.gov/airquality/oilandgas/whitepapers.html>

In August 2014, the USDA, EPA, and DOE jointly released the Biogas Opportunities Roadmap, a voluntary strategy to reduce agriculture sector methane emissions. Biogas systems capture methane from farming operations and use it to generate electricity. Current biogas operations provide power for the equivalent of almost 70,000 average American homes. The report estimates that, with proper support, more than 11,000 additional biogas systems could be deployed in the US. These systems would provide electricity for more than 3 million average American homes and reduce methane emissions between 4 and 54 MMT CO₂EQ. The roadmap presents a number of steps that USDA, EPA, and DOE will take to accelerate the use of cost-effective methane energy technology to encourage its use.

In January 2015, the Obama administration announced develop rules to regulate methane emissions from new or modified oil and gas production facilities. The EPA plans to propose Federal regulations to cut methane emissions from these facilities by 40 percent to 45 percent from 2012 levels in the next decade. The proposed rules are to be published in the summer of 2015 and completed by 2016. The EPA, in a move backed by the industry, is set to rely on mostly voluntary measures to cut methane emissions from existing oil and gas operations.

In May 2016, the EPA issue three final rules that together will curb emissions of methane, smog-forming volatile organic compounds (VOCs) and toxic air pollutants such as benzene from new, reconstructed and modified oil and gas sources. (U.S. Environmental Protection Agency. Controlling Air Pollution from the Oil and Natural Gas Industry, 2017)

Reducing Methane and VOCs from New and Modified Sources

The EPA built on 2012 requirements to reduce VOC emissions by updating and adding requirements to New Source Performance Standards (NSPS) that the industry reduce emissions of GHG and to cover additional equipment and activities in the oil and gas production chain. The new regulations include sources not covered in the agency's 2012 requirements, including hydraulically fractured oil wells and equipment. The rule also requires owners/operators to find and repair leaks, known as fugitive emissions, which can be a significant source of both methane and VOC pollution. (U.S. Environmental Protection Agency. EPA's Air Rules for the Oil & Gas Industry, 2017)

The final New Source Performance Standards (NSPS) is expected to reduce 510,000 short tons of methane in 2025, the equivalent of reducing 11 million metric tons of carbon dioxide. The rule is also expected to reduce other pollutants, including 210,000 of VOCs and 3,900 tons of air toxics in 2025.

Collecting Information to Develop Regulations for Existing Sources

The EPA issued a first draft of an Information Collection Request, seeking a broad range of information on the oil and gas industry, including: how equipment and emissions controls are, or can be, configured; what installed those controls entails; and the associated costs. This includes information on natural gas venting that occurs as part of existing process or maintenance activities, such as well and pipeline

blowdowns, equipment malfunctions and flashing emissions from storage tanks. Industry will be legally required to respond to the final ICR. (U.S. Environmental Protection Agency. EPA's Air Rules for the Oil & Gas Industry, 2017)

Clarifying and Implementing Permitting Requirements

Two new rules clarifying permitting requirements for the oil and natural gas industry were issued. The two rules were Final Source Determination Rule and Final Federal Implementation Plan for Indian Country. The Final Source Determination Rule clarifies when multiple pieces of equipment and activities in the oil and gas industry must be deemed a single source when determining whether major source permitting programs apply. The Final Federal Implementation Plan for Indian Country implements the Minor New Source Review Program in Indian country for oil and natural gas production to limit emissions of harmful air pollution while making the preconstruction permitting process more streamlined and efficient. (U.S. Environmental Protection Agency. EPA's Air Rules for the Oil & Gas Industry, 2017)

"On August 29, 2016, the EPA announced final updates to its New Source Performance Standards (NSPS) to reduce emissions of methane-rich landfill gas from new, modified and reconstructed municipal solid waste (MSW) landfills. In a separate action, the EPA also issued guidelines for reducing emissions from existing MSW landfills. Both actions are part of the President's Climate Action Plan – Strategy to Reduce Methane Emissions." (U.S. Environmental Protection Agency, 2017)

The federal government has also taken several steps in reduce GHG emissions by increasing automobile fuel economy. In December 2007, Congress increased the corporate average fuel economy (CAFE) standards for passenger cars and light trucks to 35 miles per gallon by 2020. In May 2009, the Obama Administration proposed a new national fuel economy program ultimately requiring an average fuel economy standard of 35.5 miles per gallon in 2016. In July 2011, President Obama announced an agreement with thirteen large automakers, representing 90 percent of all vehicles sold in the US, to increase fuel economy to 54.5 miles per gallon for cars and light-duty trucks by model year 2025.

In December 2015, Parties to the UNFCCC reached a landmark agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low carbon future. The Paris Agreement's main goal is to produce action to the threat of climate change by keeping global temperatures from rising 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit temperature increase to 1.5 degrees Celsius above pre-industrial levels. The Agreement also makes countries adapt the impacts of climate change and to create provides funds to pursue low greenhouse gas emissions and climate resilient development. The Agreement also provides transparent framework for action and support.

The United States of America signed the agreement on April 22, 2016. In October 2016, the threshold for entry into force was met and in November 2016, the agreement went into force. The Agreement received 195 signatories, with Syria and Nicaragua not signing.

The Trump Administration is taking a different stance on greenhouse gas emissions and global climate change. Between January and March 2017, President Trump signed three Executive Orders seeking regulatory reform, including the review, repeal, replacement, or modification to existing regulations.

On January 30, 2017, President Trump signed Executive Order 13,771 "Reducing Regulation and Controlling Regulatory Costs" which reflects the President's policy "to be prudent and financially responsible in the expenditure of funds, from both public and private sources." (Exec. Order No. 13,771, 2017) This includes "managing the costs associated with the governmental imposition of private expenditures required to comply with Federal Regulation." (Exec. Order No. 13,771, 2017) The Order requires for every one new regulation issued, at least two prior regulations be identified for elimination and that the costs of planned regulations be prudently managed and controlled through a budgeting process.

On February 24, 2017, President Trump signed Executive Order 13,777 "Enforcing the Regulatory Reform Agenda", which directs federal agencies to create a Regulatory Reform Task Force. One duty of the task force is to evaluate existing regulations and make recommendations to the agency head regarding their repeal, replacement, or modification, consistent with applicable law. The Executive Order required the EPA to submit a progress report to the Administrator by Mid May-2017. In April 2017, the EPA issued a Federal Register notice on evaluation of existing regulations and received over 460,000 comments when the comment period closed.

On March 28, 2017, President Trump signed Executive Order 13,783 "Promoting Energy Independence and Economic Growth" which calls for a review of the Clean Power Plan, related rules, and NSPS for Oil and Gas, and all agencies to "review existing regulations, orders, guidance documents, and policies that potentially burden the development or use of domestically produced energy resources." (Exec. Order No. 13,783, 2017) Executive Order 13,783 also repealed certain energy and climate related presidential and regulatory actions, including: "Executive Order 13,653 of November 1, 2013 (Preparing the United States for the Impacts of Climate Change); The Presidential Memorandum of June 25, 2013 (Power Sector Carbon Pollution Standards); The Presidential Memorandum of November 3, 2015 (Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment); and The Presidential Memorandum of September 21, 2016 (Climate Change and National Security)." (Exec. Order No. 13,783, 2017) The Executive Order also indents to have the "following reports rescinded: The Report of the Executive Office of the President of June 2013 (The President's Climate Action Plan) and The Report of the Executive Office of the President of March 2014 (Climate Action Plan Strategy to Reduce Methane Emissions.)" (Exec. Order No. 13,783, 2017)

On April 3, 2017, in accordance with Executive Order 13,783, the EPA submitted a Withdrawal of Proposed Rules for "Federal Plan Requirement for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; and Clean Energy Incentive Program Design Details. The October 23, 2015 proposed rule would have proposed "for a federal plan to implement the greenhouse gas emission guidelines for existing fossil fuel-fired electric generating units, in addition to model trading rules for implementation of emission guidelines and for amendments to the

Clean Air Act framework regulations, and the June 30, 2016 proposed rule concerning design details of the Clean Energy Incentive Program." (Withdrawal of Proposed Rules, 2017)

On April 4, 2017, the EPA announced the review of three plans: (1) The Clean Power Plan; (2) Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Station Sources: Electric Generating Units; (3) 2016 Oil and Gas New Source Performance Standards for New, Reconstructed, and Modified Sources. On October 16, 2017, the EPA issued proposed repeal of The Clean Power Plan.

On June 1, 2017, the Trump Administration announced that it would be withdrawing from the Paris Agreement citing the Agreement could cost the United States economy millions of jobs and trillions of dollars in economic output over the next several decades.

1.5.2 California State Plans, Policies, Regulations, and Laws.

California has distinguished itself as a national and International leader in efforts to address global climate change by enacting several major pieces of legislation, engaging in multi-national and multi-state collaborative efforts, and preparing a wealth of information on the impacts associated with global climate change beginning in 2001.

In 2001, Senate Bills 1771 and 527 created the structure for the California Climate Action Registry. The non-profit Registry assisted organizations to voluntarily establish and record baseline GHG emissions so that early action reductions could be considered in future regulations. In 2002, Assembly Bill 1493, Pavely, instructed CARB to develop and adopt GHG emission standards for automobiles. As discussed below, these standards were subjected to legal challenges and non-approval by the EPA. However, the regulations that were eventually adopted became the basis of the federal fuel economy standards adopted in 2009. The State established its Renewable Energy Portfolio Standard Program in 2002 with a goal to increase the electricity generated using renewable energy to 20 percent by 2017. The 2005 Energy Action Plan increased this goal to 33 percent by 2020.

In June 2005, Governor Arnold Schwarzenegger issued Executive Order S-3-05, which set greenhouse gas emissions reduction targets for the State of California and laid out responsibilities among the state agencies for implementing the Executive Order and for reporting on progress toward the targets. The targets established by the Executive Order are to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

In 2006, the State adopted the landmark California Global Warming Solutions Act of 2006 (AB32). This Act, declared that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The Act directed CARB to take a number of actions, including; (1) Identify and adopt regulations for discrete early actions that could be enforceable on or before January 1, 2010, (2) Identify the statewide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, (3) prepare and approve a Scoping Plan for achieving the maximum technologically feasible and cost-effective reductions

in GHG emissions from sources or categories of sources of GHGs by 2020, and update the Scoping Plan every five years, (4) Adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit GHG emissions, and (5) Maintain and continue reductions in emissions of GHG beyond 2020. In addition, CARB was required to appoint and convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Committee to advise the Board during implementation of the Act.

In a December 2006 report, CARB estimated that California emitted between 425 and 468 million metric tons of CO₂EQ in 1990. In December 2007, CARB finalized 1990 emissions at 427 million metric tons of CO₂EQ which established the 2020 emissions limit.

In October 2007, CARB published the Early Action Plan that identified nine discrete early action GHG reduction measures that were subsequently developed into voluntary programs and regulations. The regulations include a low carbon fuel standard, landfill methane emission reductions, measures to reduce high GWP refrigerant emissions from vehicle air conditioning systems, requiring vehicle service providers to check and maintain proper tire pressures, requiring large semi-truck trailers to incorporate aerodynamic features and low rolling resistance tires along with idle reducing technology, and providing dockside electrical service at shipping ports so that docked ships do not need to operate onboard generators. In addition, regulations were adopted to reduce high GWP GHG emissions associated with semiconductor manufacturing, to restrict the use of SF₆, and to reduce high GWP GHG emissions from consumer products.

In 2007, Senate Bill 97 was adopted requiring the Governor's Office of Planning and Research (OPR) to prepare amendments to the CEQA Guidelines for the feasible mitigation of GHG emissions and the effects of climate change. Further, the OPR is required to periodically update these guidelines as CARB implements AB 32. In June 2008, OPR issued a Technical Advisory on CEQA and Climate Change that provided an outline of the elements needed for a CEQA GHG analysis. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010. Those CEQA Guidelines amendments clarified several points, including:

- Lead agencies must analyze the greenhouse gas emissions of proposed projects, and must reach a conclusion regarding the significance of those emissions. (CEQA Guidelines § 15064.4.)
- When a project's greenhouse gas emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions. (CEQA Guidelines § 15126.4(c).)
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change. (CEQA Guidelines § 15126.2(a).)
- Lead agencies may significantly streamline the analysis of greenhouse gases on a project level by using a programmatic greenhouse gas emissions reduction plan meeting certain criteria. (CEQA Guidelines § 15183.5(b).)

- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply, and ways to reduce energy demand, including through the use of efficient transportation alternatives. (CEQA Guidelines, Appendix F.)

In November 2008, the Governor issued Executive Order S-13-08 directing state agencies to plan for sea level rise and other climate change impacts. There are four key actions in the Executive Order: (1) initiation of a climate change adaptation strategy that will assess the state's expected climate change impacts where the state is most vulnerable, with recommendations by early 2009; (2) an expert panel on sea level rise will inform state planning and development efforts; (3) interim guidance to state agencies on planning for sea level rise in coastal and floodplain areas for new projects; and (4) initiation of a report on critical existing and planned infrastructure projects vulnerable to sea level rise. (<http://gov.ca.gov/executive-order/11036/>)

In December 2008, CARB enacted regulations under AB32 to require mandatory reporting of greenhouse gas emissions capturing approximately 94 percent of industrial and commercial stationary source emissions. Entities required to report emissions included electricity generating facilities, electricity retail providers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tons of CO₂ from stationary source

That same month, CARB adopted the first Scoping Plan required by AB32. The Scoping Plan is a comprehensive plan to achieve the GHG Emissions reduction targets called for by AB32. The primary elements of the plan are to expand and strengthen energy efficiency programs, achieve a statewide renewable energy mix of 33 percent, develop a cap-and-trade program, establish transportation emissions targets and establish fees. Table 3 provides a summary of the GHG emission reduction actions identified in the Scoping Plan. ARB estimated that the implementation of the Scoping Plan measures would reduce statewide GHG emissions needed to meet the 2020 limit. In September 2010, CARB reported that approximately 40 percent of the reduction measures identified in the Plan have been secured.

Table 3

First Scoping Plan Measures

Cap-and-Trade Program: Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.

Light-Duty Vehicle Standards: Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.

Energy Efficiency: Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).

Renewables Portfolio Standard: Achieve 33 percent renewable energy mix statewide.

Low Carbon Fuel Standard: Develop and adopt the Low Carbon Fuel Standard.

Regional Transportation-Related Greenhouse Gas Targets: Develop regional greenhouse gas emissions reduction targets for passenger vehicles.

Vehicle Efficiency Measures: Implement light-duty vehicle efficiency measures.

Goods Movement: Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.

Million Solar Roofs Program: Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.

Medium- & Heavy-Duty Vehicles: Adopt medium- (MD) and heavy-duty (HD) vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010. Future, yet to be determined improvements, includes hybridization of MD and HD trucks.

Industrial Emissions: Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.

High Speed Rail: Support implementation of a high-speed rail system.

Green Building Strategy: Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.

High Global Warming Potential Gases: Adopt measures to reduce high warming global potential gases.

Recycling and Waste: Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.

Sustainable Forests: Preserve forest sequestration and encourage the use of forest biomass for sustainable energy.

Water: Continue efficiency programs and use cleaner energy sources to move and treat water.

Agriculture: In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

In May 2014, CARB adopted the First Update to the Scoping Plan. The Update builds upon the 2008 Scoping Plan refining existing strategies and recommendations and building upon them to define the State's climate change priorities for the following five years. The Update identifies opportunities to leverage existing and new funding to further reduce GHG emissions through strategic planning and targeted low carbon investments. The Plan sets the groundwork to reach the post-2020 reduction goals. It also evaluates how to align the State's long-term GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

The First Update presents an outline of the latest understanding of climate science including increased certainty in humans' role in climate change. The State's approach to climate change is discussed to provide the underlying principles for the recommendations in the Plan. The Plan looks back at the GHG emission reductions that have been accomplished to date and presents the next steps needed to achieve the long-term climate goal of emissions 80 percent below 1990 levels by 2050. The Plan discusses the need for integrated and coordinated planning to achieve the

State's GHG emissions reduction goals, emphasizing the importance of transportation, land use and housing planning development and outlining investments needed to enable these reductions. The Update also discusses the monitoring and evaluation that will be needed to ensure successful implementation of the State's GHG emissions reduction policies and programs.

While the original Scoping Plan provided specific GHG reduction measures in nine different economic sectors, the Update discusses reductions in six key focus areas (energy, transportation, agriculture, water, wasted management, and natural and working lands) as well as short-lived pollutants, green buildings, and the State's Cap and Trade Program. These focus areas include multiple economic sectors and have overlapping and complementary interests that require careful coordination.

In April 2015, Governor Edmund "Jerry" Brown issued Executive Order B-30-15 requiring California to establish a greenhouse gas emission reduction midterm target of 40 percent below 1990 levels. This reduction target complements the established greenhouse gas emission reduction target to 1990 levels by the year 2020 and established greenhouse gas emission reduction target of 80 percent below 1990 levels by the year 2050 as identified in AB32.

1.5.3 South Coast Air Quality Management District Plans, Policies, Regulations and Laws.

The South Coast Air Quality Management District ("SCAQMD") adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" in April 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons (CFCs), methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- Phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons (HCFCs) by the year 2000;
- Develop recycling regulations for HCFCs (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and,
- Support the adoption of a California GHG emission reduction goal.

The legislative and regulatory activity detailed above is expected to require significant development and implementation of energy efficient technologies and shifting of energy production to renewable sources.

1.5.4 City of Lakewood Plans, Policies, Regulations, and Laws

Lakewood has adopted programs to encourage "green living", including recycling, water and energy conservation programs in an effort to preserve the environment and to minimize greenhouse gases.

2.0 Potential Greenhouse Gas Impacts

2.1 Significance Thresholds

Appendix G of the CEQA Guidelines, Environmental Checklist Form presents two questions to determine the significance of a Project's Greenhouse Gas Emissions;

- a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

At this time, a widely accepted quantitative threshold for determining whether GHG emissions will have a significant impact on the environment needed to answer the first question has not been established. Both CARB and SCAQMD have been working to establish significance thresholds for GHG impacts and have published draft thresholds for review and comment, but no significance thresholds applicable to general projects have been adopted by these agencies. Section 2.1.1 discusses CARB's significance threshold development and section 2.1.2 discusses SCAQMD's significance threshold development. These proposed thresholds will be used as guidance in a qualitative assessment of the project's GHG impact potential. The second question is qualitative.

2.1.1 California Air Resource Board Significance Thresholds

The CARB is the lead agency for implementing AB 32. In October 2008, CARB published a Proposed Scoping Plan, in coordination with the Climate Action Team (CAT), to establish a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California. The measures in the Scoping plan approved by the Board will be developed over the next two years and be in place by 2020. California is the fifteenth largest emitter of GHGs on the planet, representing about 2 percent of the worldwide emissions. According to climate scientists, California and the rest of the developed world will have to cut emissions by 80 percent from today's levels to stabilize the amount of CO₂ in the atmosphere and prevent the most severe effects of global climate change. This long-range goal is reflected in California Executive Order S-3-05 that requires an 80 percent reduction of greenhouse gases from 1990 levels by 2050. Reducing GHG emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emissions levels projected for 2020, or about 15 percent from today's levels. On a per-capita basis, that means reducing our annual emissions of 14 tons of CO₂ equivalent for every man, woman and child in California down to about 10 tons per person by 2020.

The scoping plan asserts that significant progress can be made toward the 2020 goal using existing technologies, and improving the efficiency of energy use. Other solutions involve improving our state's infrastructure, transitioning to cleaner and more secure sources of energy, and adopting 21st century land use planning and development practices. Key elements of California's recommendations for reducing its greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation.
- CARB anticipated 5 million metric tons of CO₂ equivalent (MMT CO₂EQ) reduction for Regional Transportation-Related Greenhouse Gas Targets.

To meet the 1990 target established by AB 32, CARB recommends a de minimis (minimal importance) emission threshold of 0.1 MMT annual (100,000 MT per year) CO₂EQ per transportation source category. Source categories whose total aggregated emissions are below this level are not proposed for emission reduction requirements in the Scoping Plan but may contribute toward the target via other means. As each regulation to implement the Scoping Plan is developed, CARB and other agencies will consider more specific de minimis levels below which the regulatory requirements would not apply. These levels will consider the cost to comply, especially for small businesses, and other factors. Until approved thresholds and guidelines are adopted at the local and regional level, the proposed de minimis threshold of 100,000 MT CO₂EQ per year for transportation sources will be utilized for transportation sources.

2.1.2 SCAQMD's Significance Thresholds

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) adopted GHG significance threshold for Stationary Sources, Rules and Plans where the SCAQMD is lead agency. The threshold uses a tiered approach. The project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For industrial stationary source projects, the SCAQMD adopted a screening threshold of 10,000 MT CO₂EQ/year. This threshold was selected to capture 90 percent of the GHG emissions from these types of projects where the combustion of natural gas is the primary source of GHG emissions. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact. Tier 4 consists of three decision tree options. Under the first option, the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. Under the second option, the project would be excluded if it had early compliance with AB 32 through early implementation

of CARB's Scoping Plan measures. Under the third option, the project would be excluded if it met sector based performance standards. However, the specifics of the Tier 4 compliance options were not adopted by the SCAQMD board to allow further time to develop the options and coordinate with CARB's GHG significance threshold development efforts. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

While not adopted by the SCAQMD Board, the guidance document prepared for the stationary source threshold (SCAQMD 2008b) also suggested the same tiered approach for stationary sources with a 3,000 MTCO₂EQ/year screening threshold. However, at the time of adoption of the industrial stationary source threshold the SCAQMD felt additional analysis was required along with coordination with CARB's GHG significance threshold development efforts.

SCAQMD formed a working group to further develop the GHG significance thresholds. In 2010, the Bay Area Air Quality Management District adopted significance thresholds for both air quality and greenhouse gasses. However, the California Building Industry Association (CBIA) sued the BAAQMD because they did not conduct a CEQA review. The trial court found that the BAAQMD was required to perform the environmental analysis required by CEQA prior to adoption the Significance Thresholds. This decision was overturned by the First District Court of Appeal. The CBIA has appealed the decision to the California Supreme Court. The Supreme Court agreed to hear the case in November 2013 and briefings were filed in 2014. The Court has received briefs and is expected to hear oral arguments and render a decision in 2015. Because of the uncertainty caused by this case, SCAQMD has paused its development of GHG thresholds while awaiting a decision. However, prior to this pause, the SCAQMD GHG working group had made substantial progress on further developing the thresholds.

At the November 2009 SCAQMD GHG working group meeting, SCAQMD staff presented two options for screening thresholds for residential and commercial projects. The first option would have different thresholds for specific land uses. The proposed threshold for residential projects is 3,500 MT CO₂EQ/year, the commercial threshold is 1,400 MT CO₂EQ/year, and the mixed-use threshold is 3,000 MT CO₂EQ/year. The second option would apply the 3,000 MT CO₂EQ/year screening threshold for all commercial/residential projects. Lead agencies would be able to select either option. These thresholds are based on capturing 90 percent of the emissions from projects and requiring them to comply with the higher tiers of the threshold (i.e., performance requirements or GHG reductions outside of the project) to not result in a significant impact.

Staff also presented updated for compliance options for Tier 4 of the significance thresholds. The first option would be a reduction of 23.9 percent in GHG emissions over the base case. This percentage reduction represents the land use sector portion of the CARB Scoping Plan's overall reduction of 28 percent. This target would be updated as the AB 32 Scoping Plan is revised. The base case scenario for this reduction still needs to be defined. Residual emissions would need to be less than 25,000 MT CO₂EQ/year to comply with the option. Staff-proposed efficiency targets for the third option of 4.6 MT CO₂EQ/year per service population (population

employment) for project level analysis and 6.6 MT CO₂EQ/year for plan level analyses. For project level analyses, residual emissions would need to be less than 25,000 MT CO₂EQ/year to comply with this option.

For this project the 3,000 MT CO₂EQ per year screening threshold will be used for the significance threshold. The methodology recommends that total construction emissions be amortized over a 30-year period or the project's expected lifetime if it is less than 30 years. The SCAQMD's working group has not set a date for finalizing the recommendations.

2.2 Project Emissions Calculation Methodology

GHG emissions during construction and operation of the project were estimated using the methodologies presented below. Section 2.2.1 presents the methodologies used to estimate construction related GHG emissions.

2.2.1 Construction Emissions

The CalEEMod program (version 2013.3.2) was used to calculate the emissions from the associated with construction of the project. CalEEMod is a computer model developed by a group of California air districts that uses emission factors from CARB's EMFAC2011 model for on-road vehicle emission estimates and emission factors from CARB's OFFROAD model for off-road vehicle and equipment emission estimates. The sources of GHG emissions during construction include off-road construction vehicles and equipment, on-road haul trucks, and employee vehicles.

A description of the general construction activities and the equipment expected to be utilized for these activities was provided by the project applicant and are described in detail in the following section.

2.2.1.1 Construction Activities

Lakewood Boulevard between Alameda Boulevard and Atlantic Avenue is proposed to be modified from an existing four lane arterial to a six lane arterial within the existing Right of Way. Construction of the Project is anticipated to commence in January 2019, funding dependent, and take approximately 36 months to complete. Improvements will consist of reconstructing existing medians; improving and repairing existing pavement; modifying and repairing existing curbs, sidewalks and ramps including improving Americans with Disabilities Act (ADA) accessibility; widen and narrowing the road as needed within the existing Right of Way, generally three feet or less to maintain minimum lane widths; modify traffic systems to accommodate the parkway including traffic signals, signage, street lighting; relocate utilities and adjust to grade as needed to accommodate improvements; add or replace street trees; add aesthetics improvements including landscaped planters and modify transit stops. The project is anticipated to be constructed within the existing right of way.

The following paragraphs provide the information used to develop the construction activity estimates used for the construction emissions estimate. The CalEEMod input and output files are located in the in the appendix.

Utility Work: The project will relocate the existing utilities underground, consisting of over 15,200 feet total of trenching on both sides of Lakewood Blvd. Material exports will be 200 cubic yards and generate 0.06 trips per day during the duration of the project. Vendor trips, including trenching, will generate 29.1 trips per day. The duration of the project is anticipated to take 86 weeks.

Demolition and Excavation of Parkway and Roadway: The project will remove existing distressed pavement from the roadway in preparation for the pavement overlay. Existing concrete curbs and medians will be demolished in preparation of constructing replacement drought tolerant landscaped medians. This project will also remove material within the right-of-way along the roadway for preparation to construct a parkway. The project will export approximately 4,500 cubic yards of material in preparation to construct the parkway and pavement overlay. This work is anticipated 22 weeks to complete. Hauling of the material will generate approximately 3.5 truck trips per day.

Construction of Concrete Curbs and Wall: The project will construct new concrete curbs for reconstructed medians, roadway edges and parkway. A retaining wall/fence between Candlewood Street and Del Amo Boulevard will be constructed between the parkway and a retaining wall. Concrete pouring will require approximately 2,900 cubic yards of material. Deliveries, including concrete deliveries, will generate an average of 2.6 truck trips per day. Export of material is anticipated to be 500 cubic yards and generate 0.28 trips per day. This work is anticipated to take approximately 35 weeks to complete.

Paving and Striping: The project will pave approximately 9,000 cubic yards of material for the roadway rehabilitation and for paving the parkway. Road striping will occur after paving. Approximately 731,100 square feet of roadway area will be overlaid, using 4,500 cubic yards of material. Approximately 219,400 square feet of parkway area will be overlaid, using approximately 4,500 cubic yards of material. Material delivery will generate approximately 14.0 truck trips per day.

Roadway striping will use approximately 161 gallons of paint (assuming 112 gallons of paint for six lanes per mile) and result in 592 lbs of VOC's for 6 lanes. Striping will use an off road truck that will generate 18.4 hauling trips at a trip length of 0.28 miles. This work is anticipated to take approximately 13 weeks to complete.

Landscaping Median and Parkway: The project will landscape the medians and parkway with approximately 9,500 cubic yards of material and 300 plants. Import of plant and fill material is anticipated to generate an average of 8.7 truck trips per day. This work is anticipated to take approximately 22 weeks to complete.

Note that delays in the start of construction would not significantly affect emission estimates. In fact, the CalEEMod program includes a reduction in on-road and off-road vehicle exhaust emissions each year to account for new construction equipment and on-road vehicles manufactured under stricter emission standards becoming a larger part of the construction fleet (a fleet average emission factor is used to estimate emissions). So for emissions modeling purposes, a delay moving the activity into the following year would actually result in a slight reduction in the exhaust emissions estimates. Lengthening the duration of each activity would result in the same or lower daily emissions as daily activity levels for emission sources would

either not change or decrease as the work is spread out over a longer period of time. A shortening of any of the construction activities assumed could result in higher emissions and would require a re-analysis of the emission impacts. Because the construction GHG emissions estimate are cumulative, shortening or lengthening the duration of construction would not change the amount of work required nor the quantity of GHG emissions.

2.3 Estimate of Project Greenhouse Gas Emissions

Using the methodologies described in Section 2.2.1, CO₂ emissions during construction of the project were calculated and are presented in Table 4. The total annual metric tons of CO₂EQ emissions for each construction activity are presented.

Table 4
Total Construction CO₂ Emissions

Activity	Annual Emissions (MT/Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ EQ
Trenching - 2019	387.6	0.1	0.0	389.0
Construction - 2020	384.4	0.1	0.0	385.8
Construction - 2021	757.9	0.1	0.0	760.8
Trenching - 2020	175.9	0.0	0.0	176.8
Demolition - 2020	174.6	0.0	0.0	175.5
Paving - 2021	562.2	0.1	0.0	565.1
Architectural Coating - 2021	222.4	0.1	0.0	223.9
Site Preparation - 2021	263.5	0.0	0.0	264.6
Total Emissions	2,928.60	0.52	-	2,941.53
Project Life Average Annual Construction Emissions*	97.62	0.02	0.00	98.05
Screening Threshold:				3,000
Exceed Threshold?				No

*Based on 30 Year Project Life Per SCAQMD Significance Thresholds

Table 4 also shows the project lifetime average annual construction emissions. The SCAQMD GHG guidance recommends that construction emissions be amortized over a 30-year project lifetime to determine significance.

2.4 Impacts From Project

The analysis presented above shows that the net increase in GHG emissions due to the project's construction activities are below the SCAQMD suggested screening level significance threshold of 3,000 metric tons per year. Thus, no project specific mitigation measures are required to construct the project. Additionally, as discussed in Section 1.5.4, UCI implements a climate action plan which is compliant with AB 32 (described in Section 1.5.2) and policies contained in the University of California Policy on Sustainable Practices to further reduce GHG emissions on the campus. The proposed project would also incorporate project relevant specific policies contained in these plans. Therefore, the project will not considerably contribute to significant cumulative impacts associated with global climate change due to GHG emissions or interfere with California's ability to achieve its GHG reduction goals.

3.0 Mitigation Measures

3.1 Short-Term Impacts

The analysis presented concluded that the construction of the project would not result in any significant short-term air quality impacts. No mitigation measures are required.

3.2 Long-Term Impacts

The analysis presented concluded that the project would not result in any significant long-term air quality impacts. No mitigation measures are required.

4.0 Unavoidable Significant Impacts

With the mitigation measures described in Section 3.0, all significant impacts will be reduced to a level of insignificance and the project will not result in any unavoidable significant impacts.

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Exec. Order No. 13,771, 82 Fed. Reg. 9,339 (January 30, 2017)

Exec. Order No. 13,783, 82 Fed. Reg. 16,093 (March 28, 2017)

Withdrawal of Proposed Rules: Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; and Clean Energy Incentive Program Design Details, 82 Fed. Reg. 16,144 (April 3, 2017) (to be codified at 60 C.F.R. pt. 60)

Appendix

CalEEMod Input/Output Files

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LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

LAKEWOOD_BLVD
South Coast AQMD Air District, Winter

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	664.49	1000sqft	15.25	664,492.00	0
Other Non-Asphalt Surfaces	103.86	1000sqft	2.38	103,865.00	0
Other Non-Asphalt Surfaces	7.86	1000sqft	0.18	7,855.00	0
City Park	1.53	Acre	1.53	66,646.80	0
City Park	0.94	Acre	0.94	40,946.40	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

Project Characteristics - Lakewood Blvd Improvements

Land Use - SQFT used as metric for roadway due to available data measurements in SQFT

Construction Phase - START AND FINISH DATES ARE ASSUMPTIONS BASED ON PHASING DURATION AND EXPECTED OPERATIONAL YEAR

Off-road Equipment - Architectural Coating equipment type was revised for equipment to used for this project type. Equipment type is based on information from similar projects.

Off-road Equipment - Building Construction equipment type was revised for equipment to used for this project type. Equipment type is based on information from similar projects.

Off-road Equipment - Demolition equipment type was revised for equipment to used for this project type. Equipment type is based on data provided by client

Off-road Equipment - Paving equipment type was revised for equipment to used for this project type. Equipment type is based on information from similar projects.

Off-road Equipment - OFF-ROAD EQUIPMENT HAS BEEN REVISED BASED ON EQUIPMENT TO BE USED FOR PROJECT

Off-road Equipment - Added one (1) trencher to phase

Trips and VMT - PHASES UPDATED BASED ON TRIPS, EQUIPMENT USAGE, AND WORKERS ON PROJECT

Demolition -

Grading -

Architectural Coating - PARKING AREA IS PAVEMENT OVERLAY TO GET 6% AREA FOR STRIPING FOR PROJECT PER DEFAULTS OF CALEEMOD

Vehicle Trips - CITY PARK IS THE LANDSCAPING ON PARKWAY. IT IS NOT EXPECTED TO DRAW ADDITIONAL TRAFFIC.

Area Coating - PARKING AREA IS PAVEMENT OVERLAY TO GET 6% AREA FOR STRIPING FOR PROJECT PER DEFAULTS OF CALEEMOD

Energy Use -

Water And Wastewater - NO WATER USE IS EXPECTED WITH CITY PARK LAND USE. THE GREENSPACE IS DROUGHT TOLERANT AND WILL NOT BE IRRIGATED

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	46,573.00	536,269.00

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

tblAreaCoating	Area_Parking	46573	536269
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	370.00	174.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	10.00	110.00
tblGrading	MaterialImported	0.00	9,427.00
tblLandUse	LandUseSquareFeet	664,490.00	664,492.00
tblLandUse	LandUseSquareFeet	103,860.00	103,865.00
tblLandUse	LandUseSquareFeet	7,860.00	7,855.00
tblOffRoadEquipment	HorsePower	78.00	158.00
tblOffRoadEquipment	HorsePower	172.00	15.00
tblOffRoadEquipment	HorsePower	97.00	247.00
tblOffRoadEquipment	LoadFactor	0.48	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Architectural Coating
tblOffRoadEquipment	PhaseName		Architectural Coating
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Trenching
tblSequestration	NumberOfNewTrees	0.00	300.00
tblTripsAndVMT	HaulingTripLength	20.00	0.28
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	840.00	450.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	933.00
tblTripsAndVMT	HaulingTripNumber	0.00	18.47
tblTripsAndVMT	HaulingTripNumber	1,178.00	952.00
tblTripsAndVMT	VendorTripLength	6.90	0.01
tblTripsAndVMT	VendorTripLength	6.90	0.25
tblTripsAndVMT	VendorTripLength	6.90	8.65
tblTripsAndVMT	VendorTripLength	6.90	0.25

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

tblTripsAndVMT	VendorTripLength	6.90	0.25
tblTripsAndVMT	VendorTripNumber	0.00	29.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	145.00	3.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	15.00	14.00
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tblTripsAndVMT	WorkerTripNumber	371.00	18.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	74.00	5.00
tblTripsAndVMT	WorkerTripNumber	5.00	22.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblWater	OutdoorWaterUseRate	2,942,958.93	0.00

2.0 Emissions Summary

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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					
2019	1.9652	16.5959	14.6414	0.0238	0.1588	1.0280	1.1867	0.0422	0.9916	1.0338	0.0000	2,307.326 9	2,307.326 9	0.3492	0.0000	2,316.056 8
2020	2.5245	23.1093	19.1807	0.0472	1.8989	0.9961	2.8950	0.3144	0.9708	1.2852	0.0000	4,556.309 5	4,556.309 5	0.7109	0.0000	4,574.080 8
2021	41.0442	22.4550	20.1423	0.0471	0.5329	0.9704	1.5033	0.1436	0.9007	1.0444	0.0000	4,690.852 8	4,690.852 8	1.0637	0.0000	4,717.445 2
Maximum	41.0442	23.1093	20.1423	0.0472	1.8989	1.0280	2.8950	0.3144	0.9916	1.2852	0.0000	4,690.852 8	4,690.852 8	1.0637	0.0000	4,717.445 2

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					
2019	1.9652	16.5959	14.6414	0.0238	0.1588	1.0280	1.1867	0.0422	0.9916	1.0338	0.0000	2,307.326 9	2,307.326 9	0.3492	0.0000	2,316.056 8
2020	2.5245	23.1093	19.1807	0.0472	0.9811	0.9961	1.9772	0.1754	0.9708	1.1462	0.0000	4,556.309 5	4,556.309 5	0.7109	0.0000	4,574.080 8
2021	41.0442	22.4550	20.1423	0.0471	0.5329	0.9704	1.5033	0.1436	0.9007	1.0444	0.0000	4,690.852 8	4,690.852 8	1.0637	0.0000	4,717.445 2
Maximum	41.0442	23.1093	20.1423	0.0472	0.9811	1.0280	1.9772	0.1754	0.9916	1.1462	0.0000	4,690.852 8	4,690.852 8	1.0637	0.0000	4,717.445 2

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.7 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	lb/day										lb/day					
Hauling	0.0646	2.2155	0.4975	6.5100e-003	0.1512	6.8900e-003	0.1581	0.0414	6.5900e-003	0.0480		704.6490	704.6490	0.0499		705.8970
Vendor	5.9900e-003	0.2366	0.0622	2.3000e-004	1.0300e-003	1.3000e-004	1.1600e-003	3.1000e-004	1.2000e-004	4.3000e-004		25.1664	25.1664	4.4400e-003		25.2773
Worker	0.1015	0.0659	0.7448	2.2900e-003	0.2459	1.8100e-003	0.2477	0.0652	1.6700e-003	0.0669		227.8469	227.8469	6.1100e-003		227.9996
Total	0.1720	2.5181	1.3045	9.0300e-003	0.3982	8.8300e-003	0.4070	0.1070	8.3800e-003	0.1154		957.6623	957.6623	0.0605		959.1739

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

	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	0.0000	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
Unmitigated	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

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
City Park	0.00	0.00	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.7 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	lb/day										lb/day					
Hauling	0.0646	2.2155	0.4975	6.5100e-003	0.1512	6.8900e-003	0.1581	0.0414	6.5900e-003	0.0480		704.6490	704.6490	0.0499		705.8970
Vendor	5.9900e-003	0.2366	0.0622	2.3000e-004	1.0300e-003	1.3000e-004	1.1600e-003	3.1000e-004	1.2000e-004	4.3000e-004		25.1664	25.1664	4.4400e-003		25.2773
Worker	0.1015	0.0659	0.7448	2.2900e-003	0.2459	1.8100e-003	0.2477	0.0652	1.6700e-003	0.0669		227.8469	227.8469	6.1100e-003		227.9996
Total	0.1720	2.5181	1.3045	9.0300e-003	0.3982	8.8300e-003	0.4070	0.1070	8.3800e-003	0.1154		967.6623	957.6623	0.0605		959.1739

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					4.3600e-003	0.0000	4.3600e-003	6.6000e-004	0.0000	6.6000e-004			0.0000			0.0000
Off-Road	0.3746	3.7916	4.5205	6.2100e-003		0.2236	0.2236		0.2057	0.2057	0.0000	601.8002	601.8002	0.1946		606.6660
Total	0.3746	3.7916	4.5205	6.2100e-003	4.3600e-003	0.2236	0.2279	6.6000e-004	0.2057	0.2063	0.0000	601.8002	601.8002	0.1946		606.6660

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.6 Architectural Coating - 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	lb/day										lb/day					
Hauling	5.5000e-004	0.0273	4.5000e-003	3.0000e-005	8.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005		3.3303	3.3303	6.0000e-004		3.3454
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	0.0231	0.0150	0.1693	5.2000e-004	0.0559	4.1000e-004	0.0563	0.0148	3.8000e-004	0.0152		51.7834	51.7834	1.3900e-003		51.8181
Total	0.0236	0.0423	0.1738	5.5000e-004	0.0560	4.3000e-004	0.0564	0.0148	4.0000e-004	0.0152		55.1137	55.1137	1.9900e-003		55.1634

3.7 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					9.6900e-003	0.0000	9.6900e-003	1.4700e-003	0.0000	1.4700e-003			0.0000			0.0000
Off-Road	0.3746	3.7916	4.5205	6.2100e-003		0.2236	0.2236		0.2057	0.2057		601.8002	601.8002	0.1946		606.6660
Total	0.3746	3.7916	4.5205	6.2100e-003	9.6900e-003	0.2236	0.2332	1.4700e-003	0.2057	0.2071		601.8002	601.8002	0.1946		606.6660

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.6 Architectural Coating - 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	lb/day										lb/day					
Hauling	5.5000e-004	0.0273	4.5000e-003	3.0000e-005	8.0000e-005	2.0000e-005	9.0000e-005	2.0000e-005	2.0000e-005	4.0000e-005		3.3303	3.3303	6.0000e-004		3.3454
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	0.0231	0.0150	0.1693	5.2000e-004	0.0559	4.1000e-004	0.0563	0.0148	3.8000e-004	0.0152		51.7834	51.7834	1.3900e-003		51.8181
Total	0.0236	0.0423	0.1738	5.5000e-004	0.0560	4.3000e-004	0.0564	0.0148	4.0000e-004	0.0152		55.1137	55.1137	1.9900e-003		55.1634

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					
Archit. Coating	38.2401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7575	5.8829	4.9631	0.0133		0.2707	0.2707		0.2566	0.2566	0.0000	1,284.323 0	1,284.323 0	0.3437		1,292.914 6
Total	38.9976	5.8829	4.9631	0.0133		0.2707	0.2707		0.2566	0.2566	0.0000	1,284.323 0	1,284.323 0	0.3437		1,292.914 6

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.5 Paving - 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	lb/day										lb/day					
Hauling	0.1071	3.6745	0.8252	0.0108	0.2508	0.0114	0.2622	0.0687	0.0109	0.0797		1,168.683 4	1,168.683 4	0.0828		1,170.753 3
Vendor	0.0150	0.5915	0.1554	5.9000e-004	2.5700e-003	3.2000e-004	2.8900e-003	7.7000e-004	3.0000e-004	1.0700e-003		62.9159	62.9159	0.0111		63.1933
Worker	0.0922	0.0599	0.6771	2.0800e-003	0.2236	1.6500e-003	0.2252	0.0593	1.5200e-003	0.0608		207.1336	207.1336	5.5500e-003		207.2724
Total	0.2143	4.3260	1.6577	0.0135	0.4769	0.0134	0.4903	0.1288	0.0128	0.1415		1,438.732 9	1,438.732 9	0.0994		1,441.218 9

3.6 Architectural Coating - 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					
Archit. Coating	38.2401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.7575	5.8829	4.9631	0.0133		0.2707	0.2707		0.2566	0.2566		1,284.323 0	1,284.323 0	0.3437		1,292.914 6
Total	38.9976	5.8829	4.9631	0.0133		0.2707	0.2707		0.2566	0.2566		1,284.323 0	1,284.323 0	0.3437		1,292.914 6

LAKEWOOD_BLV - South Coast AQMD Air District, Winter

3.5 Paving - 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	lb/day										lb/day					
Hauling	0.1071	3.6745	0.8252	0.0108	0.2508	0.0114	0.2622	0.0687	0.0109	0.0797		1,168.683 4	1,168.683 4	0.0828		1,170.753 3
Vendor	0.0150	0.5915	0.1554	5.9000e-004	2.5700e-003	3.2000e-004	2.8900e-003	7.7000e-004	3.0000e-004	1.0700e-003		62.9159	62.9159	0.0111		63.1933
Worker	0.0922	0.0599	0.6771	2.0800e-003	0.2236	1.6500e-003	0.2252	0.0593	1.5200e-003	0.0608		207.1336	207.1336	5.5500e-003		207.2724
Total	0.2143	4.3260	1.6577	0.0135	0.4769	0.0134	0.4903	0.1288	0.0128	0.1415		1,438.732 9	1,438.732 9	0.0994		1,441.218 9

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	1.1940	12.2038	13.3477	0.0198		0.6859	0.6859		0.6310	0.6310	0.0000	1,912.683 3	1,912.683 3	0.6186		1,928.148 3
Paving	0.6147					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.8087	12.2038	13.3477	0.0198		0.6859	0.6859		0.6310	0.6310	0.0000	1,912.683 3	1,912.683 3	0.6186		1,928.148 3

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	lb/day										lb/day					
Hauling	2.1400e-003	0.0736	0.0165	2.2000e-004	8.9100e-003	2.3000e-004	9.1400e-003	2.3300e-003	2.2000e-004	2.5500e-003		23.3964	23.3964	1.6600e-003		23.4379
Vendor	8.9200e-003	0.3136	0.0837	8.9000e-004	0.0241	7.3000e-004	0.0248	6.9200e-003	6.9000e-004	7.6200e-003		95.2836	95.2836	5.8300e-003		95.4293
Worker	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	0.0951	0.4411	0.7096	2.9800e-003	0.2342	2.4400e-003	0.2366	0.0626	2.2700e-003	0.0649		305.1002	305.1002	0.0125		305.4123

3.5 Paving - 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	1.1940	12.2038	13.3477	0.0198		0.6859	0.6859		0.6310	0.6310		1,912.6833	1,912.6833	0.6186		1,928.1483
Paving	0.6147					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.8087	12.2038	13.3477	0.0198		0.6859	0.6859		0.6310	0.6310		1,912.6833	1,912.6833	0.6186		1,928.1483

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	lb/day										lb/day					
Hauling	2.1400e-003	0.0736	0.0165	2.2000e-004	8.9100e-003	2.3000e-004	9.1400e-003	2.3300e-003	2.2000e-004	2.5500e-003		23.3964	23.3964	1.6600e-003		23.4379
Vendor	9.9200e-003	0.3136	0.0837	8.9000e-004	0.0241	7.3000e-004	0.0248	6.9200e-003	6.9000e-004	7.6200e-003		95.2836	95.2836	5.8300e-003		95.4293
Worker	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	0.0951	0.4411	0.7096	2.9800e-003	0.2342	2.4400e-003	0.2366	0.0626	2.2700e-003	0.0649		305.1002	305.1002	0.0125		305.4123

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	0.6304	4.8266	5.6742	7.9900e-003		0.2697	0.2697		0.2541	0.2541	0.0000	734.0529	734.0529	0.1973		738.9859
Total	0.6304	4.8266	5.6742	7.9900e-003		0.2697	0.2697		0.2541	0.2541	0.0000	734.0529	734.0529	0.1973		738.9859

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	lb/day										lb/day					
Hauling	2.2500e-003	0.0792	0.0168	2.2000e-004	8.7300e-003	2.6000e-004	8.9900e-003	2.2900e-003	2.4000e-004	2.5300e-003		23.6465	23.6465	1.6900e-003		23.6887
Vendor	0.0118	0.3488	0.0924	9.0000e-004	0.0241	1.9600e-003	0.0260	6.9200e-003	1.8700e-003	8.7900e-003		95.9804	95.9804	6.0900e-003		96.1326
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.1028	0.4880	0.7717	3.0500e-003	0.2340	3.7500e-003	0.2377	0.0626	3.5200e-003	0.0661		312.2926	312.2926	0.0133		312.6251

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	0.6304	4.8266	5.6742	7.9900e-003		0.2697	0.2697		0.2541	0.2541		734.0529	734.0529	0.1973		738.9859
Total	0.6304	4.8266	5.6742	7.9900e-003		0.2697	0.2697		0.2541	0.2541		734.0529	734.0529	0.1973		738.9859

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	lb/day										lb/day					
Hauling	2.2500e-003	0.0792	0.0168	2.2000e-004	8.7300e-003	2.6000e-004	8.9900e-003	2.2900e-003	2.4000e-004	2.5300e-003		23.6465	23.6465	1.6900e-003		23.6887
Vendor	0.0118	0.3488	0.0924	9.0000e-004	0.0241	1.9600e-003	0.0260	6.9200e-003	1.8700e-003	8.7900e-003		95.9804	95.9804	6.0900e-003		96.1326
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.1028	0.4880	0.7717	3.0500e-003	0.2340	3.7500e-003	0.2377	0.0626	3.5200e-003	0.0661		312.2926	312.2926	0.0133		312.6251

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	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012	0.0000	733.8226	733.8226	0.2009		738.8451
Total	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012	0.0000	733.8226	733.8226	0.2009		738.8451

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.3 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	lb/day										lb/day					
Hauling	0.0323	1.1380	0.2407	3.1400e-003	0.0721	3.6800e-003	0.0758	0.0198	3.5200e-003	0.0233		339.7286	339.7286	0.0242		340.3344
Vendor	9.7500e-003	0.3681	0.1003	3.6000e-004	1.5400e-003	3.3000e-004	1.8700e-003	4.6000e-004	3.1000e-004	7.7000e-004		38.1058	38.1058	7.0300e-003		38.2814
Worker	0.0691	0.0466	0.5153	1.5000e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		149.8511	149.8511	4.3000e-003		149.9585
Total	0.1111	1.5527	0.8563	5.0000e-003	0.2302	5.2000e-003	0.2354	0.0617	4.9200e-003	0.0667		527.6854	527.6854	0.0356		528.5743

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	lb/day										lb/day					
Off-Road	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012		733.8226	733.8226	0.2009		738.8451
Total	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012		733.8226	733.8226	0.2009		738.8451

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.3 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	lb/day										lb/day					
Hauling	0.0323	1.1380	0.2407	3.1400e-003	0.0721	3.6800e-003	0.0758	0.0198	3.5200e-003	0.0233		339.7286	339.7286	0.0242		340.3344
Vendor	9.7500e-003	0.3681	0.1003	3.6000e-004	1.5400e-003	3.3000e-004	1.8700e-003	4.6000e-004	3.1000e-004	7.7000e-004		38.1058	38.1058	7.0300e-003		38.2814
Worker	0.0691	0.0466	0.5153	1.5000e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		149.8511	149.8511	4.3000e-003		149.9585
Total	0.1111	1.5527	0.8563	5.0000e-003	0.2302	5.2000e-003	0.2354	0.0617	4.9200e-003	0.0667		527.6854	527.6854	0.0356		528.6743

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					0.7509	0.0000	0.7509	0.1137	0.0000	0.1137			0.0000			0.0000
Off-Road	2.4134	21.5566	18.3245	0.0422		0.9909	0.9909		0.9659	0.9659	0.0000	4,028.624 1	4,028.624 1	0.6753		4,045.506 4
Total	2.4134	21.5566	18.3245	0.0422	0.7509	0.9909	1.7419	0.1137	0.9659	1.0796	0.0000	4,028.624 1	4,028.624 1	0.6753		4,045.506 4

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.2 Trenching - 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	lb/day										lb/day					
Hauling	4.8000e-004	0.0169	3.5800e-003	5.0000e-005	4.3300e-003	5.0000e-005	4.3800e-003	1.0900e-003	5.0000e-005	1.1500e-003		5.0485	5.0485	3.6000e-004		5.0575
Vendor	0.0452	1.7335	0.4731	1.5200e-003	1.0300e-003	1.0900e-003	2.1200e-003	3.8000e-004	1.0400e-003	1.4100e-003		162.9313	162.9313	0.0333		163.7624
Worker	0.0691	0.0466	0.5153	1.5000e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		149.8511	149.8511	4.3000e-003		149.9585
Total	0.1148	1.7971	0.9920	3.0700e-003	0.1619	2.3300e-003	0.1642	0.0430	2.1800e-003	0.0452		317.8308	317.8308	0.0379		318.7784

3.3 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					1.6687	0.0000	1.6687	0.2527	0.0000	0.2527			0.0000			0.0000
Off-Road	2.4134	21.5566	18.3245	0.0422		0.9909	0.9909		0.9659	0.9659		4,028.6241	4,028.6241	0.6753		4,045.5065
Total	2.4134	21.5566	18.3245	0.0422	1.6687	0.9909	2.6597	0.2527	0.9659	1.2186		4,028.6241	4,028.6241	0.6753		4,045.5065

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.2 Trenching - 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	lb/day										lb/day					
Hauling	4.8000e-004	0.0169	3.5800e-003	5.0000e-005	4.3300e-003	5.0000e-005	4.3800e-003	1.0900e-003	5.0000e-005	1.1500e-003		5.0485	5.0485	3.6000e-004		5.0575
Vendor	0.0452	1.7335	0.4731	1.5200e-003	1.0300e-003	1.0900e-003	2.1200e-003	3.8000e-004	1.0400e-003	1.4100e-003		162.9313	162.9313	0.0333		163.7624
Worker	0.0691	0.0466	0.5153	1.5000e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		149.8511	149.8511	4.3000e-003		149.9585
Total	0.1148	1.7971	0.9920	3.0700e-003	0.1619	2.3300e-003	0.1642	0.0430	2.1800e-003	0.0452		317.8308	317.8308	0.0379		318.7784

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	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780	0.0000	1,970.7734	1,970.7734	0.2986		1,978.2390
Total	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780	0.0000	1,970.7734	1,970.7734	0.2986		1,978.2390

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.2 Trenching - 2019**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	5.2000e-004	0.0181	3.7000e-003	5.0000e-005	1.2700e-003	7.0000e-005	1.3400e-003	3.4000e-004	6.0000e-005	4.1000e-004		5.1009	5.1009	3.7000e-004		5.1102
Vendor	0.0504	1.7879	0.5159	1.5200e-003	1.0300e-003	1.6600e-003	2.6900e-003	3.8000e-004	1.5800e-003	1.9800e-003		162.9850	162.9850	0.0360		163.8838
Worker	0.0747	0.0523	0.5675	1.5500e-003	0.1565	1.2200e-003	0.1577	0.0415	1.1200e-003	0.0426		154.6518	154.6518	4.8300e-003		154.7726
Total	0.1256	1.8583	1.0872	3.1200e-003	0.1588	2.9500e-003	0.1617	0.0422	2.7600e-003	0.0450		322.7377	322.7377	0.0412		323.7666

3.2 Trenching - 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					
Off-Road	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780		1,970.7734	1,970.7734	0.2986		1,978.2390
Total	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780		1,970.7734	1,970.7734	0.2986		1,978.2390

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

3.2 Trenching - 2019**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	5.2000e-004	0.0181	3.7000e-003	5.0000e-005	1.2700e-003	7.0000e-005	1.3400e-003	3.4000e-004	6.0000e-005	4.1000e-004		5.1009	5.1009	3.7000e-004		5.1102
Vendor	0.0504	1.7879	0.5159	1.5200e-003	1.0300e-003	1.6600e-003	2.6900e-003	3.8000e-004	1.5800e-003	1.9600e-003		162.9850	162.9850	0.0360		163.8838
Worker	0.0747	0.0523	0.5675	1.5500e-003	0.1565	1.2200e-003	0.1577	0.0415	1.1200e-003	0.0426		154.6518	154.6518	4.8300e-003		154.7726
Total	0.1256	1.8583	1.0872	3.1200e-003	0.1588	2.9500e-003	0.1617	0.0422	2.7600e-003	0.0450		322.7377	322.7377	0.0412		323.7666

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	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888	0.0000	1,984.589 2	1,984.589 2	0.3080		1,992.290 2
Total	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888	0.0000	1,984.589 2	1,984.589 2	0.3080		1,992.290 2

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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
Trenching	6	14.00	29.00	20.00	14.70	0.01	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	14.00	6.00	450.00	14.70	0.25	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	18.00	3.00	50.00	14.70	8.65	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	10.00	933.00	14.70	0.25	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	5.00	0.00	18.47	14.70	6.90	0.28	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	22.00	4.00	952.00	14.70	0.25	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Trenching - 2019

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	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888		1,984.589 2	1,984.589 2	0.3080		1,992.290 2
Total	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888		1,984.589 2	1,984.589 2	0.3080		1,992.290 2

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Air Compressors	2	8.00	78	0.48
Trenching	Concrete/Industrial Saws	1	8.00	81	0.73
Trenching	Off-Highway Trucks	1		402	0.38
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	1	8.00	78	0.50
Demolition	Air Compressors	2	8.00	158	0.38
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Tractors/Loaders/Backhoes	2	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	3	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating	Off-Highway Trucks	1	6.00	402	0.38
Architectural Coating	Other Construction Equipment	1	6.00	15	0.42
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

	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
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	Trenching	Trenching	1/1/2019	3/31/2020	5	326	
2	Demolition	Demolition	4/1/2020	8/31/2020	5	109	
3	Building Construction	Building Construction	9/1/2020	4/30/2021	5	174	
4	Paving	Paving	5/1/2021	7/30/2021	5	65	
5	Architectural Coating	Architectural Coating	5/1/2021	7/30/2021	5	65	
6	Site Preparation	Site Preparation	8/1/2021	12/31/2021	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 17.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 536,269 (Architectural Coating – sqft)

OffRoad Equipment

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Energy	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
Mobile	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
Total	0.9688	7.2000e-004	0.0795	1.0000e-005	0.0000	2.8000e-004	2.8000e-004	0.0000	2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004	0.0000	0.1816

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	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Energy	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
Mobile	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
Total	0.9688	7.2000e-004	0.0795	1.0000e-005	0.0000	2.8000e-004	2.8000e-004	0.0000	2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004	0.0000	0.1816

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

	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
Percent Reduction	0.00	0.00	0.00	0.00	35.43	0.00	16.43	27.78	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00

LAKEWOOD_BVLD - South Coast AQMD Air District, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Other Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Other Non-Asphalt Surfaces	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	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
NaturalGas Unmitigated	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

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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					
City Park	0	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
Other Asphalt Surfaces	0	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
Other Non-Asphalt Surfaces	0	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
Total		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

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					
City Park	0	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
Other Asphalt Surfaces	0	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
Other Non-Asphalt Surfaces	0	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
Total		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

6.0 Area Detail

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Unmitigated	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816

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	0.6810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2805					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3600e-003	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Total	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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	0.6810					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2805					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3600e-003	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Total	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816

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
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

LAKEWOOD_BLVD - South Coast AQMD Air District, Winter

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

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

Equipment Type	Number
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11.0 Vegetation

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

LAKEWOOD_BLVD
South Coast AQMD Air District, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	664.49	1000sqft	15.25	664,492.00	0
Other Non-Asphalt Surfaces	103.86	1000sqft	2.38	103,865.00	0
Other Non-Asphalt Surfaces	7.86	1000sqft	0.18	7,855.00	0
City Park	1.53	Acre	1.53	66,646.80	0
City Park	0.94	Acre	0.94	40,946.40	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

Project Characteristics - Lakewood Blvd Improvements

Land Use - SQFT used as metric for roadway due to available data measurements in SQFT

Construction Phase - START AND FINISH DATES ARE ASSUMPTIONS BASED ON PHASING DURATION AND EXPECTED OPERATIONAL YEAR

Off-road Equipment - Architectural Coating equipment type was revised for equipment to used for this project type. Equipment type is based on information from similar projects.

Off-road Equipment - Building Construction equipment type was revised for equipment to used for this project type. Equipment type is based on information from similar projects.

Off-road Equipment - Demolition equipment type was revised for equipment to used for this project type. Equipment type is based on data provided by client

Off-road Equipment - Paving equipment type was revised for equipment to used for this project type. Equipment type is based on information from similar projects.

Off-road Equipment - OFF-ROAD EQUIPMENT HAS BEEN REVISED BASED ON EQUIPMENT TO BE USED FOR PROJECT

Off-road Equipment - Added one (1) trencher to phase

Trips and VMT - PHASES UPDATED BASED ON TRIPS, EQUIPMENT USAGE, AND WORKERS ON PROJECT

Demolition -

Grading -

Architectural Coating - PARKING AREA IS PAVEMENT OVERLAY TO GET 6% AREA FOR STRIPING FOR PROJECT PER DEFAULTS OF CALEEMOD

Vehicle Trips - CITY PARK IS THE LANDSCAPING ON PARKWAY. IT IS NOT EXPECTED TO DRAW ADDITIONAL TRAFFIC.

Area Coating - PARKING AREA IS PAVEMENT OVERLAY TO GET 6% AREA FOR STRIPING FOR PROJECT PER DEFAULTS OF CALEEMOD

Energy Use -

Water And Wastewater - NO WATER USE IS EXPECTED WITH CITY PARK LAND USE. THE GREENSPACE IS DROUGHT TOLERANT AND WILL NOT BE IRRIGATED

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	46,573.00	536,269.00

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

tblAreaCoating	Area_Parking	46573	536269
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	370.00	174.00
tblConstructionPhase	NumDays	20.00	109.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDays	10.00	110.00
tblGrading	MaterialImported	0.00	9,427.00
tblLandUse	LandUseSquareFeet	664,490.00	664,492.00
tblLandUse	LandUseSquareFeet	103,860.00	103,865.00
tblLandUse	LandUseSquareFeet	7,860.00	7,855.00
tblOffRoadEquipment	HorsePower	78.00	158.00
tblOffRoadEquipment	HorsePower	172.00	15.00
tblOffRoadEquipment	HorsePower	97.00	247.00
tblOffRoadEquipment	LoadFactor	0.48	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Architectural Coating
tblOffRoadEquipment	PhaseName		Architectural Coating
tblOffRoadEquipment	PhaseName		Trenching
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Trenching
tblSequestration	NumberOfNewTrees	0.00	300.00
tblTripsAndVMT	HaulingTripLength	20.00	0.28
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	840.00	450.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	933.00
tblTripsAndVMT	HaulingTripNumber	0.00	18.47
tblTripsAndVMT	HaulingTripNumber	1,178.00	952.00
tblTripsAndVMT	VendorTripLength	6.90	0.01
tblTripsAndVMT	VendorTripLength	6.90	0.25
tblTripsAndVMT	VendorTripLength	6.90	8.65
tblTripsAndVMT	VendorTripLength	6.90	0.25

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

tblTripsAndVMT	VendorTripLength	6.90	0.25
tblTripsAndVMT	VendorTripNumber	0.00	29.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	145.00	3.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	15.00	14.00
tblTripsAndVMT	WorkerTripNumber	15.00	14.00
tblTripsAndVMT	WorkerTripNumber	371.00	18.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	74.00	5.00
tblTripsAndVMT	WorkerTripNumber	5.00	22.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblWater	OutdoorWaterUseRate	2,942,958.93	0.00

2.0 Emissions Summary

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

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					
2019	1.9546	16.6509	14.6081	0.0241	0.1588	1.0276	1.1864	0.0422	0.9913	1.0335	0.0000	2,341.0278	2,341.0278	0.3455	0.0000	2,349.6659
2020	2.5170	23.1020	19.2028	0.0474	1.8989	0.9960	2.8949	0.3144	0.9707	1.2851	0.0000	4,577.8089	4,577.8089	0.7094	0.0000	4,595.5434
2021	41.0301	22.4240	20.1522	0.0476	0.5329	0.9702	1.5031	0.1436	0.9005	1.0441	0.0000	4,739.1484	4,739.1484	1.0596	0.0000	4,765.6371
Maximum	41.0301	23.1020	20.1522	0.0476	1.8989	1.0276	2.8949	0.3144	0.9913	1.2851	0.0000	4,739.1484	4,739.1484	1.0596	0.0000	4,765.6371

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					
2019	1.9546	16.6509	14.6081	0.0241	0.1588	1.0276	1.1864	0.0422	0.9913	1.0335	0.0000	2,341.0278	2,341.0278	0.3455	0.0000	2,349.6659
2020	2.5170	23.1020	19.2028	0.0474	0.9811	0.9960	1.9771	0.1754	0.9707	1.1462	0.0000	4,577.8089	4,577.8089	0.7094	0.0000	4,595.5434
2021	41.0301	22.4240	20.1522	0.0476	0.5329	0.9702	1.5031	0.1436	0.9005	1.0441	0.0000	4,739.1484	4,739.1484	1.0596	0.0000	4,765.6371
Maximum	41.0301	23.1020	20.1522	0.0476	0.9811	1.0276	1.9771	0.1754	0.9913	1.1462	0.0000	4,739.1484	4,739.1484	1.0596	0.0000	4,765.6371

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

	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
Percent Reduction	0.00	0.00	0.00	0.00	35.43	0.00	16.44	27.78	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

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	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Energy	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
Mobile	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
Total	0.9688	7.2000e-004	0.0795	1.0000e-005	0.0000	2.8000e-004	2.8000e-004	0.0000	2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004	0.0000	0.1816

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	0.9688	7.2000e-004	0.0795	1.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004		0.1816
Energy	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
Mobile	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
Total	0.9688	7.2000e-004	0.0795	1.0000e-005	0.0000	2.8000e-004	2.8000e-004	0.0000	2.8000e-004	2.8000e-004		0.1704	0.1704	4.5000e-004	0.0000	0.1816

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

	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
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	Trenching	Trenching	1/1/2019	3/31/2020	5	326	
2	Demolition	Demolition	4/1/2020	8/31/2020	5	109	
3	Building Construction	Building Construction	9/1/2020	4/30/2021	5	174	
4	Paving	Paving	5/1/2021	7/30/2021	5	65	
5	Architectural Coating	Architectural Coating	5/1/2021	7/30/2021	5	65	
6	Site Preparation	Site Preparation	8/1/2021	12/31/2021	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 17.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 536,269 (Architectural Coating – sqft)

OffRoad Equipment

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Air Compressors	2	8.00	78	0.48
Trenching	Concrete/Industrial Saws	1	8.00	81	0.73
Trenching	Off-Highway Trucks	1		402	0.38
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	1	8.00	78	0.50
Demolition	Air Compressors	2	8.00	158	0.38
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Tractors/Loaders/Backhoes	2	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	3	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Architectural Coating	Off-Highway Trucks	1	6.00	402	0.38
Architectural Coating	Other Construction Equipment	1	6.00	15	0.42
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

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
Trenching	6	14.00	29.00	20.00	14.70	0.01	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	14.00	6.00	450.00	14.70	0.25	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	3	18.00	3.00	50.00	14.70	8.65	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	20.00	10.00	933.00	14.70	0.25	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	5.00	0.00	18.47	14.70	6.90	0.28	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	22.00	4.00	952.00	14.70	0.25	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Trenching - 2019

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	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888		1,984.589 2	1,984.589 2	0.3080		1,992.290 2
Total	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888		1,984.589 2	1,984.589 2	0.3080		1,992.290 2

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

3.2 Trenching - 2019

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	5.0000e-004	0.0179	3.4200e-003	5.0000e-005	1.2700e-003	7.0000e-005	1.3400e-003	3.4000e-004	6.0000e-005	4.1000e-004		5.1952	5.1952	3.5000e-004		5.2041
Vendor	0.0459	1.8478	0.4214	1.7400e-003	1.0300e-003	1.3100e-003	2.3400e-003	3.8000e-004	1.2500e-003	1.6300e-003		185.9050	185.9050	0.0320		186.7039
Worker	0.0686	0.0477	0.6291	1.6600e-003	0.1565	1.2200e-003	0.1577	0.0415	1.1200e-003	0.0426		165.3385	165.3385	5.1700e-003		165.4677
Total	0.1150	1.9133	1.0539	3.4500e-003	0.1588	2.6000e-003	0.1614	0.0422	2.4300e-003	0.0447		356.4386	356.4386	0.0375		357.3757

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	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888	0.0000	1,984.5892	1,984.5892	0.3080		1,992.2902
Total	1.8396	14.7376	13.5542	0.0207		1.0250	1.0250		0.9888	0.9888	0.0000	1,984.5892	1,984.5892	0.3080		1,992.2902

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3.2 Trenching - 2019**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	5.0000e-004	0.0179	3.4200e-003	5.0000e-005	1.2700e-003	7.0000e-005	1.3400e-003	3.4000e-004	5.0000e-005	4.1000e-004		5.1952	5.1952	3.5000e-004		5.2041
Vendor	0.0459	1.8478	0.4214	1.7400e-003	1.0300e-003	1.3100e-003	2.3400e-003	3.8000e-004	1.2500e-003	1.6300e-003		185.9050	185.9050	0.0320		186.7039
Worker	0.0686	0.0477	0.6291	1.6600e-003	0.1565	1.2200e-003	0.1577	0.0415	1.1200e-003	0.0426		165.3385	165.3385	5.1700e-003		165.4677
Total	0.1150	1.9133	1.0539	3.4500e-003	0.1588	2.6000e-003	0.1614	0.0422	2.4300e-003	0.0447		356.4386	356.4386	0.0375		357.3757

3.2 Trenching - 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					
Off-Road	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780		1,970.7734	1,970.7734	0.2986		1,978.2390
Total	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780		1,970.7734	1,970.7734	0.2986		1,978.2390

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

3.2 Trenching - 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	lb/day										lb/day					
Hauling	4.7000e-004	0.0167	3.3200e-003	5.0000e-005	4.3300e-003	5.0000e-005	4.3800e-003	1.0900e-003	5.0000e-005	1.1400e-003		5.1431	5.1431	3.5000e-004		5.1518
Vendor	0.0412	1.7897	0.3868	1.7300e-003	1.0300e-003	8.6000e-004	1.8900e-003	3.8000e-004	8.2000e-004	1.2000e-003		185.9447	185.9447	0.0295		186.6825
Worker	0.0633	0.0426	0.5724	1.6100e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		160.2184	160.2184	4.6100e-003		160.3336
Total	0.1050	1.8490	0.9625	3.3900e-003	0.1619	2.1000e-003	0.1639	0.0430	1.9600e-003	0.0449		351.3062	351.3062	0.0345		352.1679

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	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780	0.0000	1,970.7734	1,970.7734	0.2986		1,978.2390
Total	1.6932	13.6906	13.4864	0.0207		0.9113	0.9113		0.8780	0.8780	0.0000	1,970.7734	1,970.7734	0.2986		1,978.2390

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

3.2 Trenching - 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	lb/day										lb/day					
Hauling	4.7000e-004	0.0167	3.3200e-003	5.0000e-005	4.3300e-003	5.0000e-005	4.3800e-003	1.0900e-003	5.0000e-005	1.1400e-003		5.1431	5.1431	3.5000e-004		5.1518
Vendor	0.0412	1.7897	0.3868	1.7300e-003	1.0300e-003	8.6000e-004	1.8900e-003	3.8000e-004	8.2000e-004	1.2000e-003		185.9447	185.9447	0.0295		186.6825
Worker	0.0633	0.0426	0.5724	1.6100e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		160.2184	160.2184	4.6100e-003		160.3336
Total	0.1050	1.8490	0.9625	3.3900e-003	0.1619	2.1000e-003	0.1639	0.0430	1.9600e-003	0.0449		351.3062	351.3062	0.0345		352.1679

3.3 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					1.6687	0.0000	1.6687	0.2527	0.0000	0.2527			0.0000			0.0000
Off-Road	2.4134	21.5566	18.3245	0.0422		0.9909	0.9909		0.9659	0.9659		4,028.6241	4,028.6241	0.6753		4,045.5065
Total	2.4134	21.5566	18.3245	0.0422	1.6687	0.9909	2.6597	0.2527	0.9659	1.2186		4,028.6241	4,028.6241	0.6753		4,045.5065

LAKEWOOD_BLV - South Coast AQMD Air District, Summer

3.3 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	lb/day										lb/day					
Hauling	0.0314	1.1235	0.2236	3.2000e-003	0.0721	3.6200e-003	0.0758	0.0198	3.4700e-003	0.0232		346.0992	346.0992	0.0232		346.6798
Vendor	8.9200e-003	0.3793	0.0825	4.0000e-004	1.5400e-003	2.8000e-004	1.8200e-003	4.6000e-004	2.7000e-004	7.3000e-004		42.8672	42.8672	6.2500e-003		43.0235
Worker	0.0633	0.0426	0.5724	1.6100e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		160.2184	160.2184	4.6100e-003		160.3336
Total	0.1036	1.5454	0.8784	5.2100e-003	0.2302	5.0900e-003	0.2353	0.0617	4.8300e-003	0.0666		549.1848	549.1848	0.0341		550.0370

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					0.7509	0.0000	0.7509	0.1137	0.0000	0.1137			0.0000			0.0000
Off-Road	2.4134	21.5566	18.3245	0.0422		0.9909	0.9909		0.9659	0.9659	0.0000	4,028.624 1	4,028.624 1	0.6753		4,045.506 4
Total	2.4134	21.5566	18.3245	0.0422	0.7509	0.9909	1.7419	0.1137	0.9659	1.0796	0.0000	4,028.624 1	4,028.624 1	0.6753		4,045.506 4

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

3.3 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	lb/day										lb/day					
Hauling	0.0314	1.1235	0.2236	3.2000e-003	0.0721	3.6200e-003	0.0758	0.0198	3.4700e-003	0.0232		346.0992	346.0992	0.0232		346.6798
Vendor	8.9200e-003	0.3793	0.0825	4.0000e-004	1.5400e-003	2.8000e-004	1.8200e-003	4.6000e-004	2.7000e-004	7.3000e-004		42.8672	42.8672	6.2500e-003		43.0235
Worker	0.0633	0.0426	0.5724	1.6100e-003	0.1565	1.1900e-003	0.1577	0.0415	1.0900e-003	0.0426		160.2184	160.2184	4.6100e-003		160.3336
Total	0.1036	1.5454	0.8784	5.2100e-003	0.2302	5.0900e-003	0.2353	0.0617	4.8300e-003	0.0666		549.1848	549.1848	0.0341		550.0370

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	lb/day										lb/day					
Off-Road	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012		733.8226	733.8226	0.2009		738.8451
Total	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012		733.8226	733.8226	0.2009		738.8451

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

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	lb/day										lb/day					
Hauling	2.1800e-003	0.0782	0.0156	2.2000e-004	8.7300e-003	2.5000e-004	8.9900e-003	2.2900e-003	2.4000e-004	2.5300e-003		24.0899	24.0899	1.6200e-003		24.1303
Vendor	0.0113	0.3477	0.0838	9.2000e-004	0.0241	1.9300e-003	0.0260	6.9200e-003	1.8500e-003	8.7700e-003		98.3611	98.3611	5.7100e-003		98.5038
Worker	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	0.0949	0.4807	0.8353	3.2100e-003	0.2340	3.7100e-003	0.2377	0.0626	3.5000e-003	0.0661		328.4462	328.4462	0.0133		328.7773

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	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012	0.0000	733.8226	733.8226	0.2009		738.8451
Total	0.7087	5.2553	5.7565	7.9900e-003		0.3199	0.3199		0.3012	0.3012	0.0000	733.8226	733.8226	0.2009		738.8451

LAKEWOOD_BLVD - South Coast AQMD Air District, Summer

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	lb/day										lb/day					
Hauling	2.1800e-003	0.0782	0.0156	2.2000e-004	8.7300e-003	2.5000e-004	8.9900e-003	2.2900e-003	2.4000e-004	2.5300e-003		24.0899	24.0899	1.6200e-003		24.1303
Vendor	0.0113	0.3477	0.0838	9.2000e-004	0.0241	1.9300e-003	0.0260	6.9200e-003	1.8500e-003	8.7700e-003		98.3611	98.3611	5.7100e-003		98.5038
Worker	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	0.0949	0.4807	0.8353	3.2100e-003	0.2340	3.7100e-003	0.2377	0.0626	3.5000e-003	0.0661		328.4462	328.4462	0.0133		328.7773

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	0.6304	4.8266	5.6742	7.9900e-003		0.2697	0.2697		0.2541	0.2541		734.0529	734.0529	0.1973		738.9859
Total	0.6304	4.8266	5.6742	7.9900e-003		0.2697	0.2697		0.2541	0.2541		734.0529	734.0529	0.1973		738.9859