AEA Appendix 1

Greenhouse Gas Emissions Technical Report and Appendices

Prepared for
The Newhall Land and Farming Company
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GREENHOUSE GAS EMISSIONS TECHNICAL REPORT

RESOURCE MANAGEMENT DEVELOPMENT PLAN & SPINEFLOWER CONSERVATION PLAN
LOS ANGELES COUNTY, CALIFORNIA

RAMBOLL ENVIRON

CONTENTS

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CONTENTS

TABLES

CONTENTS

CONTENTS

APPENDICES

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACC	Advanced Clean Cars
AR	Assessment Report
BAAQMD	Bay Area Air Quality Management District
CalEEMod®	California Emission Estimator Model®
CalGreen	California Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAP	Community Climate Action Plan
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CEUS	Commercial End-Use Survey
CFC	Chlorofluorocarbon
CH_4	Methane
CO_2	Carbon Dioxide
CO_2e	CO_2 Equivalents
CPUC	California Public Utilities Commission
DOE	Department of Energy
DOT	Department of Transportation
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMFAC	EMission FACtor Model
Ramboll Environ	Ramboll Environ US Corporation, formerly ENVIRON US Corporation
ES	Executive Summary
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
kW	Kilowatt

ACRONYMS AND ABBREVIATIONS

lbs	Pounds
LCFS	Low Carbon Fuel Standard
MSW	Municipal Solid Waste
MT	Metric Tonnes
$MTCO_2e$	Metric Tonnes of CO_2 Equivalent
MT/year	Metric Tonnes per Year
MW	Megawatt
MWh	Megawatt-Hour
N_2O	Nitrous Oxide
NHTSA	National Highway Traffic Safety Administration
NRSP	Newhall Ranch Specific Plan
OFFROAD	Emissions Inventory Program model
PDF	Project Design Features
PUP	Power/Utility Protocol
PV	Photovoltaic
RMDP	Resource Management and Development Plan
RPS	Renewables Portfolio Standard
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCP	Spineflower Conservation Plan
SCVCTM	Santa Clarita Valley Consolidated Traffic Model
TDM	Transportation Demand Management
USEPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
WRP	Water Reclamation Plant
ZNE	Zero Net Energy

EXECUTIVE SUMMARY

This report presents the unmitigated and mitigated greenhouse gas (GHG) emissions inventories prepared for the Newhall Ranch Resource Management and Development Plan and the Spineflower Conservation Plan (RMDP/SCP) Project, as further described in the Additional Environmental Analysis (AEA).

This Executive Summary includes a short description of the scope, methodology, and Project GHG emissions.

The GHG emissions inventory presented in Section 2 of this analysis includes the following sources of emissions: (1) area sources (e.g., landscaping-related fuel combustion sources); (2) energy use associated with residential and non-residential buildings; (3) water and wastewater treatment and distribution; (4) solid waste; (5) mobile sources (e.g., passenger vehicles); (6) construction; and (7) vegetation changes. The ongoing operational emissions consist of the first five categories, while the one-time emissions are associated with construction and vegetation changes. The typical types of GHG emissions resulting from mixed-use developments such as the Project are emissions of carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). GHG emissions are typically measured in terms of tonnes of CO_2 equivalents (CO_2e), calculated as the product of the mass emitted of a given GHG and its specific global warming potential (GWP).

This analysis primarily utilized the California Emission Estimator Model version 2013.2.2 (CalEEMod®)[1] to assist in quantifying the GHG emissions in the inventories presented in this report for the Project. CalEEMod® is a statewide program designed to calculate both criteria and GHG emissions from development projects in California. Third-party studies were also relied upon to support analyses and assumptions made outside of CalEEMod®.

As discussed in Sections 3.1 and 5.1, this report estimates the GHG emissions resulting from the Project. As documented in subsequent portions of this report and shown in **Table Executive Summary (ES)-1**, the Project site – in its existing condition – emits 11,021 metric tonnes (MT) of CO_2e per year, whereas the Unmitigated Project will emit 526,103 metric tonnes of carbon dioxide equivalent ($MTCO_2e$) per year and the Mitigated Project will emit zero (0) $MTCO_2e$ per year (as shown in **Table ES-2**). There will not be a net increase in GHG emissions as compared to the existing GHG emission levels. **Table ES-3** shows the GHG reductions achieved by each of the thirteen recommended mitigation measures.

While the recommended mitigation measures ensure that the Mitigated Project's emissions are reduced to zero (0), as presented in Sections 3.2 and 5.2, there is also evidence that the evolving regulatory framework and improving technologies will result in the Project's emissions inventory decreasing with time. Therefore, it is reasonable to expect the Mitigated Project's emissions level to decline further, below zero (0), as the regulatory initiatives identified by California Air Resources Board (CARB) in the 2014 First Update are implemented, and other technological innovations occur. Stated differently, the Project's emissions total at build-out represents the maximum emissions inventory for the Project as California's emissions sources are being regulated (and foreseeably expected to continue to be regulated in the future) in furtherance of the State's environmental policy objectives.

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1 SCAQMD. 2013. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: September 2016.

1. INTRODUCTION

The purpose of this technical report is to present the quantitative analyses that were used to evaluate the Project's greenhouse gas (GHG) emissions. Emissions during both construction and operation of the Project were quantified. For purposes of the latter category of emissions, both Unmitigated and Mitigated Project emissions were quantified in the Project's build-out year (2030). Legislation and rules regarding climate change, as well as the scientific understanding of the extent to which different activities emit GHGs, continue to evolve; as such, the inventory in this report is a reflection of the guidance and knowledge currently available. The "Project" is the Newhall Ranch Resource Management and Development Plan and the Spineflower Conservation Plan (RMDP/SCP) as described in Section 1 of the Additional Environmental Analysis (AEA).

1.1 Regulatory Framework Compliance

As a matter of law, the Project will comply with applicable Federal, State, Regional, and County requirements. Many of the applicable regulatory standards are summarized in **Table 1-1** and apply to different GHG-generating activities/sources, including construction, landscape equipment, building energy, passenger vehicles, medium- and heavy-duty trucks, solid waste, water usage, and vegetation. **Table 1-1** notes whether the emission reductions resulting from implementation of the regulatory standards are quantified in the Project's unmitigated and mitigated emissions inventories. As illustrated in **Table 1-1**, several regulatory standards were not incorporated due to the difficulty associated with modeling and quantifying the reductions. Incorporating these regulations would further reduce Project emissions; as such, the emissions estimates presented in this report provide a conservative representation of Project emissions.

1.2 Mitigation Measures

Mitigation measures are recommended to reduce the Project's emissions to levels below significance for purposes of California Environmental Quality Act (CEQA). The mitigation measures ultimately achieve growth without increased GHG emissions.

The mitigation measures recommended for the Project place high emphasis on and prioritize on-site, innovative energy efficiencies and renewable energy generation within the community's homes and buildings. Additionally, the transportation-oriented mitigation measures include the implementation of a robust Transportation Demand Management (TDM) Plan that focuses on reducing vehicle miles traveled, and provide incentives to accelerate the deployment of various categories of zero-emission electric vehicles. The details of these mitigation measures and their effectiveness at reducing Project emissions are presented in Section 4.

1.3 Existing Condition

The Project site is generally comprised of vacant land, some agricultural uses, water wells, active oil and gas operations, abandoned oil wells, and associated access roads. The area for agricultural uses is approximately 2,166.3 acres; for purposes of this analysis, it is conservatively assumed that nearly all of the agricultural acreage would be permanently eliminated during Project buildout.[2] The Project site is periodically leased to the movie industry for set locations. All existing emission sources would be eliminated during Project

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[2] Of the 2,166.3 acres currently utilized for agricultural purposes, approximately 138 acres will be conserved for continued agricultural-related uses.

buildout. **Appendix A** of this report describes in detail the existing land use and associated GHG emissions from those existing on-site land uses. The existing condition emissions inventory is estimated as 11,021 Metric Tonnes (MT) CO_2e per year, as shown in **Table ES-1**. If any existing emissions (e.g., from agricultural uses) are permanently removed due to the Project development, the GHG emissions associated with those existing operations could be considered permanently removed from the global GHG emissions inventory.[3]

[3] This analysis does not quantitatively account for the Project's elimination of some existing sources of GHG emissions located within the Project site's development footprint. This analytical approach is conservative because, as recognized by the Bay Area Air Quality Management District, if a proposed project involves the removal of existing emission sources, the existing emissions level should be subtracted from the emissions level estimated for the new proposed land uses in order to accurately quantify the change to environmental conditions. See BAAQMD, 2012. California Environmental Quality Act Air Quality Guidelines. Page 4-5. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/baaqmd-ceqa-guidelines_final_may-2012.pdf?la=en. Accessed: September 2016.

2. GHG EMISSIONS INVENTORY

This section describes the methodology that Ramboll Environ US Corporation (Ramboll Environ) used to develop the GHG emission inventories associated with the Project, which include one-time emissions (construction emissions and emissions due to vegetation changes), and operational emissions. Sub-categories of GHG operational emissions include: **area sources, energy use**, **water supply and wastewater**, **solid waste,** and **mobile sources**. **Table 2-1** summarizes the land use approved for the RMDP/SCP Project area and the related CalEEMod® modeling terms. **Table 2-2** summarizes the emission inventories discussed in this section.

2.1 Measurement and Resources

2.1.1 Units of Measurement: Tonnes of CO_2 and CO_2e

In this report, the term "GHGs" includes gases that contribute to the natural greenhouse effect, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O,) and water, as well as gases that are only man-made and that are emitted through the use of modern industrial products, such as hydroflurocarbons (HFCs) and chlorofluorocarbons (CFCs). GHG emissions are typically measured in terms of mass of CO_2 equivalent (CO_2e). CO_2e are calculated as the product of the mass of a given GHG and its specific Global Warming Potential (GWP)[4]; GWPs of 25 and 298 were used for CH_4 and N_2O, respectively, for this analysis. In many sections of this report, including the final summary sections, emissions are presented in units of CO_2e either because the GWPs of CH_4 and N_2O were accounted for explicitly, or the CH_4 and N_2O are assumed to contribute a negligible amount of GWP when compared to the CO_2 emissions from that particular emissions category.

In this report, a tonne refers to MT (1,000 kilograms). Additionally, exact totals presented in all tables and report sections may not equal the sum of components due to independent rounding of numbers.

2.1.2 Resources

2.1.2.1 CalEEMod®

Ramboll Environ primarily utilized the California Emission Estimator Model® (CalEEMod®) version 2013.2.2[5] to assist in quantifying the GHG emissions in the inventories presented in this report for the Project. CalEEMod® provides a platform to calculate both construction emissions and operational emissions from a land use development project. It calculates both the daily maximum and annual average for criteria pollutants as well as total or annual GHG emissions. The model also provides default values for water and energy use. Specifically the model aids the user in the following calculations:

- One-time short-term construction emissions associated with site preparation, demolition, grading, utility installation, building, coating, and paving from off-road construction equipment, and on-road mobile equipment associated with workers, vendors, and hauling.

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4 CalEEMod®, the primary tool used to develop the emissions inventory uses GWPs from the IPCC Second Assessment Report, which is 310 for N_2O and 21 for CH_4. The GWPs in the IPCC Fourth Assessment Report of 298 for N_2O and 25 for CH_4 have been manually incorporated to CalEEMod® output.

5 SCAQMD. 2013. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: September 2016.

- One-time vegetation sequestration changes, such as permanent vegetation land use changes and new tree plantings.
- Operational emissions associated with the fully built out land use development, such as on-road mobile vehicle traffic generated by the land uses, off-road emissions from landscaping equipment, natural gas usage in the buildings, electricity usage in the buildings, water usage by the land uses, and solid waste disposal by the land uses.

CalEEMod® is a statewide program designed to calculate both criteria and GHG emissions from development projects in California. This model was developed under the auspices of the SCAQMD and received input from other California air districts, and is currently supported by numerous lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the United States Environmental Protection Agency (USEPA) AP-42 emission factors,[6] CARB's on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and California Department of Resources Recycling and Recovery (CalRecycle).

As mentioned above, CalEEMod® is based upon the California Air Resources Board (CARB)-approved OFFROAD and EMFAC models. OFFROAD[7] is an emission factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). The off-road diesel emission factors used by CalEEMod® are based on the CARB OFFROAD2011 program. EMFAC is an emission factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles). The emission factors used by CalEEMod® are based on the CARB EMFAC2011 program.

However, CARB has released EMFAC2014, which includes various updates, notably the incorporation of USEPA and CARB regulations and standards. The updates were in response to regulations enacted through California's Advanced Clean Cars (ACC) Program and National Highway Traffic Safety Administration (NHTSA) Phase 1. Therefore, to more accurately assess the GHG emission inventories, EMFAC2014 information was incorporated into the analysis, in lieu of CalEEMod®'s default utilization of EMFAC2011 information.[8]

Notably, EMFAC2014 (unlike EMFAC2011) excludes GHG emission reductions from the Low Carbon Fuel Standard (LCFS). The omission of LCFS-related emission reduction benefits from EMFAC2014, which EMFAC2011 previously estimated would reduce GHG emissions from mobile sources by approximately 10% in 2020, results in a more conservative approach to estimate (i.e., over-estimation) the Project's emissions from mobile sources compared to if EMFAC2011 was used.

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6 The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: http://epa.gov/ttnchie1/ap42/. Accessed: September 2016.

7 CARB. 2011. Off Road Mobile Source Emission factors. Available at: http://www.arb.ca.gov/msei/msei.htm. Accessed: September 2016.

8 CARB. 2015. Release. Available at: https://www.arb.ca.gov/msei/msei.htm. Accessed: September 2016.

In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined. Ramboll Environ used default factors for Los Angeles county area (within the South Coast Air Quality Management (SCAQMD) jurisdiction) for the GHG emission inventory, unless otherwise noted in the methodology descriptions below.

CalEEMod® uses GWPs from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report(AR), which are 310 for N_2O and 21 for CH_4. Therefore, the GWPs in the IPCC Fourth Assessment Report of 298 for N_2O and 25 for CH_4 have been manually incorporated to CalEEMod® output as the Fourth Assessment Report is the basis for the GWPs in the 2014 First Update to the Scoping Plan.

2.1.2.2 Other Resources

Ramboll Environ directly or indirectly relied on emissions estimation guidance from government-sponsored organizations, government-commissioned studies of energy use patterns, energy surveys by other consulting firms, Project specific studies (e.g., ConSol Residential and Commercial Building Analysis[9], Fehr and Peers Transportation Demand Management Program[10] and Stantec Traffic Signal Synchronization Analysis[11]), and emission estimation software as described above. In cases noted below, third-party studies were also relied upon to support analyses and assumptions made outside of the approach described above.

Details regarding the specific methodologies used by CalEEMod® can be found in the CalEEMod® User's Guide and associated appendices.[12] The CalEEMod® output files are provided for reference in **Appendix B** to this report.

2.1.3 Indirect GHG Emissions from Electricity Use

Project-related electricity use results in indirect emissions, due to electricity generation activities occurring at off-site power plant locations. For this Project, electrical power will be supplied by Southern California Edison (SCE). The indirect GHG emissions created as a result of Project-related electricity use are estimated through application of the following methodology. For purposes of electricity use, intensity factors are GHG emission rates from a given source relative to the energy generation activities, and are expressed in terms of the amount of GHG released per megawatt (MW) of energy produced. The default electricity intensity for SCE in CalEEMod® for CO_2, CH_4, and N_2O are 641.26, 0.029, and 0.011 pounds (lbs) of GHG per megawatt-hour (MWh), respectively. The CO_2 default factor is based on SCE's 2007 Power/Utility Protocol (PUP) report.[13] The CH_4 and N_2O default factors are based on CARB's and E-Grid values. The SCE's PUP reports show that renewable energy sources do not result in any new CO_2 emissions. While CalEEMod®'s emission factors for CH_4 and N_2O conservatively were used for this Project, CalEEMod®'s CO_2

[9] ConSol, 2016. Residential and Commercial Building Analysis.

[10] Fehr & Peers. 2016. RMDP/SCP Project: Transportation Demand Management Program.

[11] Stantec. 2016. Newhall Ranch RMDP/SCP – GHG Reductions from Traffic Signal Coordination.

[12] SCAQMD. 2013. California Emissions Estimator Model® User's Guide. Version 2013.2.2. Available at: http://www.CalEEMod.com/. Accessed: September 2016.

[13] SCE Power/Utility Protocol (PUP) Report. Available at: http://www.climateregistry.org/tools/carrot/carrot-public-reports.html. Accessed: September 2016. The 2007 report is the most recent available data. For this analysis, the 2006 and 2007 PUP reports were both used to conservatively represent.

intensity factor was modified based on the SCE's 2006 and 2007 PUP reports, to account for the renewables portfolio standard (RPS) requirements for 2020 (33 percent RPS) and 2030 (50 percent RPS).[14] The 2006 and 2007 PUP, which report the mix of renewable and non-renewable energy sources in SCE's energy supply, were both used to conservatively calculate the emission factors.[15] This data provides the basis for the estimate of the intensity factors for the non-renewable energy, this is the value used as the basis to project what the intensity factor will be when SCE achieves the RPS requirements in 2020 and 2030. The intensity factors assuming the RPS is achieved is calculated by multiplying the percentage of energy delivered by SCE from non-renewable energy resources with the intensity factor for non-renewable energy as calculated (see **Section 2.3.2** below).

2.2 One-Time Emissions

One-time emissions are those emissions that are not reoccurring over the life of the Project. This includes emissions associated with construction and emissions associated with land use changes.

2.2.1 Construction

This section describes the estimation of GHG emissions from construction activities at the Project site. While the exact construction schedule and equipment mix may vary from the current analysis, the GHG emissions are not expected to be higher than that estimated given the conservative assumptions included in this analysis.

The Project's construction schedule consists of six stages, with construction-related activities commencing in March 2018 and concluding in December 2030, as shown in **Table 2-3**. This schedule conservatively assumes that construction may continue to the end of 2030 when the Project reaches full operation. While some construction phases are conservatively identified to conclude in the second half of the 2030 calendar year in this table, the Project's absorption schedule anticipates that the Project will be fully constructed and occupied during the 2030 calendar year. For each of the stages, the major construction phases included in this analysis are:

- Grading: involves the cut and fill of land to ensure the proper base and slope for the construction foundation. (During the grading phase, vegetation will be removed from the Project site. The construction emissions inventory presented here, in Section 2.2.1, accounts for the GHG emissions resulting from the construction equipment utilized during the grading phase. Section 2.2.2 below separately accounts for the GHG emissions associated with the removal of vegetation and subsequent revegetation of the Project site.)
- Trenching or Improvements: involves trenching and associated activities to install vital utilities.
- Paving: involves the laying of concrete or asphalt such as in parking lots or roads.

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[14] The CH_4 and N_2O intensity factors from CalEEMod® are based on emissions from California's mix of power generation sources in 2009. As more renewable energy is integrated into the electricity grid, these intensity factors will also decrease.

[15] The CalEEMod® default electricity intensity factor for SCE is based on the 2007 PUP report. However, the CO_2 emissions per total non-renewable energy is higher in the 2006 PUP report than the 2007 PUP report (e.g., the non-renewable power generation mix was 'dirtier' in 2006 than 2007). Averaging the 2006 and 2007 intensity factors results in a higher intensity factor used in the Project calculations than would be if only the 2007 data was relied upon.

- Building Construction: involves the construction of structures and buildings.
- Architectural Coating: involves the application of coatings to both the interior and exterior of buildings or structures.

GHG emissions from these construction phases are largely attributable to fuel use from construction equipment and worker commuting vehicles.[16]

Ramboll Environ used CalEEMod® version 2013.2.2 to quantify the construction emissions. The construction schedule, off-road equipment lists and equipment specifications are Project specific estimates, and consistent with the total level of construction equipment activity analysed in the *Final Joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the RMDP and SCP Project* GHG analysis.[17]

This analysis incorporated various updated assumptions including: the use of CalEEMod® version 2013.2.2 (which relies upon OFFROAD 2011 and EMFAC 2011) and an updated construction schedule based on the currently anticipated start date for construction.[18] The construction-related assumptions are shown in **Table 2-4a thru 2-4f, Table 2-5 and Table 2-6**. **Table 2-5** presents the CalEEMod® default worker, vendor, and hauling trip assumptions. CalEEMod®'s default parameters result in an over-estimation of the number of vendor and worker trips during the building construction and architectural coating phases due to the model's assumption that all buildings are constructed simultaneously during every year of construction activity. This Project proposes to phase development such that construction-related activities will occur on various portions of the total development area from year-to-year. Therefore, **Table 2-6** calculates an adjustment factor that is used to correct CalEEMod®'s number of vendor and worker trips based on the estimated number of residential dwelling units and non-residential square footage being built and painted in each calendar year.

2.2.1.1 Emissions from Construction Equipment

The emission calculations associated with construction equipment are from off-road equipment engine use based on the equipment list and phase length, and on-road vehicle trips and phase length.

Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod® assumes all of the equipment operates on diesel fuel. The calculations associated with this screen include the running exhaust emissions from off-road equipment. Since the equipment is assumed to be diesel, there are no starting emissions associated with the equipment, as these are *de minimis* for diesel-fueled equipment. CalEEMod® calculates the exhaust emissions based on CARB's OFFROAD2011 methodology using the equation presented below.[19]

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[16] In addition to the worker and vendor trips, haul truck trips were added to the site preparation to account for the truck trips hauling vegetation waste.

[17] California Department of Fish & Wildlife, *Final Joint EIS/EIR for the RMDP and SCP Project* (June 2010; SCH No. 2000011025), Volume VII – Appendix F8.0 [ENVIRON International Corporation, *Climate Change Technical Addendum* (October 2009)].

[18] Due to limitations with CalEEMod®, this was not updated to EMFAC2014.

[19] SCAQMD. 2013. California Emissions Estimator Model® User's Guide, Appendix A. Available at: http://www.CalEEMod.com/. Accessed: September 2016.

$$\text{Emissions}_{\text{Diesel}} = \sum_{i}(\text{EF}_i \times \text{Pop}_i \times \text{AvgHP}_i \times \text{Load}_i \times \text{Activity}_i)$$

Where:

EF = Emission factor in grams per horsepower-hour (g/bhp-hr) as processed from OFFROAD2011

Pop = Population, or the number of pieces of equipment

AvgHp = Maximum rated average horsepower

Load = Load factor

Activity = Hours of operation

i = equipment type

The GHG emissions associated with off-road construction equipment are shown in **Table 2-7**.

2.2.1.2 Emissions from On-Road Construction Trips

Construction generates on-road vehicle GHG emissions from personal vehicles for worker and vendor commuting, and trucks for soil and material hauling. These emissions are based on the number of trips and vehicle miles traveled (VMT) along with emission factors from EMFAC2011. As mentioned above, there will be no offsite soil hauling trucks for the Project. However, the analysis conservatively assumes that there will be 64 trips a day for hauling vegetation waste during the grading phase.

The emissions from mobile sources were calculated in CalEEMod® with the trip rates, trip lengths and emission factors for running from EMFAC2011 as follows:[20]

$$\text{Emissions}_{\text{pollutant}} = \text{VMT} * \text{EF}_{\text{running, pollutant}}$$

Where:

$\text{Emissions}_{\text{pollutant}}$ = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

$\text{EF}_{\text{running, pollutant}}$ = emission factor for running emissions

Starting and idling emissions were also calculated in CalEEMod® by multiplying the number of trips by the respective emission factor for each pollutant. The GHG emission from on-road vehicles associated with construction is shown in **Table 2-8**.

2.2.1.3 Total Construction Emissions

The total emissions from construction are summarized in **Table 2-9**. Total GHG emissions from all phases for off-road and on-road emissions are 141,612 and 51,507 metric tonnes of CO_2 equivalent $MTCO_2e$, respectively. Total GHG emissions from the construction activities are 193,119 $MTCO_2e$.[21] When amortized over 30-year project lifetime, the

[20] SCAQMD. 2013. California Emissions Estimator Model® User's Guide, Appendix A. Available at: http://www.CalEEMod.com/. Accessed: September 2016.

[21] The up-to 18 on-site on-road vehicle emissions are included as on-road emissions.

construction GHG emissions are 6,437 $MTCO_2e$/year.[22] Detailed emission inventory from the CalEEMod® output files are included in **Appendix B**.

2.2.2 Vegetation Changes

This section presents the calculation of the positive and negative GHG emissions associated with vegetation removal and re-vegetation at the site. Permanent vegetation changes that occur as a result of land use development constitute a one-time change in the carbon sequestration capacity of a project site. In this case, undeveloped land will be converted to different land uses with landscaped areas with trees. This will result in an overall net loss of carbon sequestration once the vegetation reaches a steady state (i.e., new vegetation replaces dying vegetation). Consequently, vegetation change results in a GHG emissions increase.

2.2.2.1 Vegetation Change Emissions

CalEEMod® was used to calculate GHG emissions associated with the vegetation activities of land use change and the planting of new trees, as according to the IPCC protocol for vegetation. Overall Change in Sequestered CO_2 can be estimated with this equation: [23]

$$\text{Overall Change in Sequestered CO2} = \sum_{\mathrm{i}} \left((\mathrm{SeqCO_2})_{\mathrm{i}} \times \mathrm{area_i} \right) - \sum_{\mathrm{j}} \left((\mathrm{SeqCO_2})_{\mathrm{j}} \times \mathrm{area_j} \right)$$

Where:

$SeqCO_2$ = mass of sequestered CO_2 per unit area [$MTCO_2$/acre]

area = area of land for specific land use type [acre]

i = index for final land use type

j = index for initial land use type

Conservatively, there is no reduction in GHG emissions associated with preservation of a land. The vegetation changes result in net loss of carbon sequestration. The detail is shown in **Tables 2-10a and 2-10b**.

2.3 Unmitigated Annual Operational Emissions

2.3.1 Area Sources

Area sources in CalEEMod® are direct sources of GHG emissions. The area source GHG emissions included in this analysis result from landscaping-related fuel combustion sources, such as lawn mowers. GHG emissions due to natural gas combustion in buildings, including hearths, are excluded from this section since they are included in the emissions associated with building energy use.

The resulting GHG emissions for the Unmitigated Project are shown in **Table 2-11.**

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[22] This approach to one-time construction and vegetation change GHG emissions is based on the GHG Threshold Working Group Meeting #13 Minutes from August 26, 2009. Available at: http://sfprod.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf?sfvrsn=2. Accessed: September 2016.

[23] SCAQMD. 2013. California Emissions Estimator Model® User's Guide, Appendix A. Available at: http://www.CalEEMod.com/. Accessed: September 2016.

2.3.2 Energy Use

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Climate Zone 9 was selected based on the CEC forecast climate zone map shown in the CalEEMod® User's Guide.

Table 2-12 identifies the emission factors for electricity (i.e., pounds of CO_2 per megawatt-hour delivered) used in this analysis. As illustrated in **Table 2-12**, an SCE-specific emission factor that accounts for the 50 percent RPS required by 2030, as discussed in Section 2.1.3, was calculated.

In California, Title 24 governs energy consumed by the building envelope, including its mechanical systems and some types of fixed lighting.[24] These so-called "regulated loads" are not the only source of building-related energy consumption. Instead, "unregulated loads", which are also sometimes referred to as "plug-in loads", also contribute to the total energy demand/consumption of the built environment.

The Unmitigated Project analysis assumes that the Project's residential and non-residential land uses accord to the 2016 Title 24 Standards, as that code cycle will be effective on January 1, 2017, before the Project's building construction activity commences.

To calculate the total residential building energy input for the Project (i.e., electricity and natural gas use from the residential development's regulated and unregulated loads), and in lieu of using CalEEMod® default data, Ramboll Environ utilized residential building energy use data prepared by ConSol using the CEC-approved CBECC-Res 2016 software. The total residential energy use rates input to CalEEMod® are shown in **Table 2-13a**.

To calculate the total non-residential building energy input for the Project (i.e., electricity and natural gas use from the non-residential development's regulated and unregulated loads), Ramboll Environ utilized default values provided in CalEEMod®, which are based on the Commercial End-Use Survey (CEUS),[25] in combination with building energy use data prepared by ConSol using CEC-approved building energy modeling software (EnergyPro 6.8 and 7.1). Since CalEEMod® is based on the 2008 Title 24 Standards, ConSol calculated percentage reductions for application to the relevant CalEEMod® default energy intensity factors to estimate the energy savings resulting from implementation of the 2016 Title 24 Standards. For non-residential buildings, the changes in energy consumption from 2008 to 2016 that ConSol calculated were applied to the total of the default 2008 energy use factors. The total non-residential energy use rates input to CalEEMod® are shown in **Table 2-13b** (see also **Appendix C**).[26]

The swimming pools at the Project's private recreation centers are assumed to use electricity for filters and pumps, and natural gas for water heating for the Unmitigated

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[24] Title 24, Part 6, of the California Code of Regulations: California's Energy Efficiency Standards for Residential and Nonresidential Buildings. Available at: http://www.energy.ca.gov/title24/. Accessed: September 2016.

[25] A detailed explanation how the CEUS data was processed for use in CalEEMod® is available in CalEEMod® User's Guide Appendix E.

[26] ConSol, Newhall Land & Farming Company Residential and Commercial Building Analysis (2016).

Project as shown in **Table 2-14a**. For the Unmitigated Project, CO_2e emissions from swimming pool energy were estimated to be 24,917 $MTCO_2e$/year, as shown in **Table 2-14a**. CO_2e emissions from the electricity demand and natural gas consumption of residential and non-residential buildings were estimated to be 36,833 and 21,030 $MTCO_2e$/year, respectively, or 57,862 $MTCO_2e$/year total, as shown in **Table 2-14b**.

2.3.3 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute the Project's water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water, as well as the source(s) of the water. Additionally, direct CH_4 and N_2O emissions result from the treatment of wastewater.

The Project's water demand, recycled water usage, and wastewater generation values were based on Alternative D2 of the *Final Joint EIS/EIR for the RMDP and SCP Project*[27], and scaled by the change in land use square footage and number of dwelling units between the Project and Alternative D2. The scaling factors and subsequent water use quantities are shown in **Tables 2-15a** and **2-15b**, respectively**. Table 2-15a** derives percentages for Newhall Ranch Specific Plan (NRSP), ES, and VCC to scale the water use from the water demand in Alternative D2 of the *Final Joint EIS/EIR for the RMDP and SCP Project*. These percentages are applied to all water demand rows in **Table 2-15b**, resulting in slightly lower water demand than the old Alternative D2.

The Unmitigated Project's estimated water usage reflects a demand reduction for indoor potable water that is based on compliance with applicable regulatory water conservation and recycled water requirements. Specifically, the Project will comply with the California Green Building Standards (Part 11 of Title 24) (CalGreen Standards), which require a 20 percent reduction in indoor potable water use through the use of water saving fixtures and/or flow restrictors.[28] Because the CalGreen Standards were adopted in 2010, after the development of the water usage estimates presented in the *Final Joint EIS/EIR for the RMDP and SCP Project*, the indoor water usage was reduced to reflect Project compliance with the CalGreen Standards.

The Unmitigated Project's estimated water usage also reflects that recycled water will be used to satisfy a portion of the outdoor, irrigation-related water demand, consistent with the State Water Resources Control Board's recycled water policy.[29] The recycled water totals, and subsequent emission reductions attributable to its use, are shown in **Table 2-15c.**

The CalGreen Standards, as well as the County of Los Angeles' Green Building Standards Code (Municipal Code Title 31) and previously adopted NRSP mitigation measures, and the local water purveyor (Valencia Water Company), will also require the incorporation of

[27] California Department of Fish & Wildlife, *Final Joint EIS/EIR for the RMDP and SCP Project* (June 2010; SCH No. 2000011025), Volume VII – Appendix F8.0 [ENVIRON International Corporation, *Climate Change Technical Addendum* (October 2009)].

[28] CSBC. 2010. 2010 California Green Building Standards. 4.303.1. Available at: http://www.documents.dgs.ca.gov/bsc/calgreen/2010_ca_green_bldg.pdf. Accessed: September 2016.

[29] The California Water Resources Control Board adopted the recycled water policy in 2009 and revised the policy in 2013. Available at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2013/rs2013_0003_a.pdf. Accessed: September 2016.

features to reduce the Project's outdoor water demand. The analysis conservatively does not reduce the Project's outdoor water usage to reflect these requirements.

For indirect emissions associated with the supply, treatment, and distribution of the Project's water, Ramboll Environ used CalEEMod® default assumptions the Project's Valencia Commerce Center and Entrada planning areas, which would rely upon a blend of locally-sourced and State Water Project water. The default assumptions represent the average embodied energy[30] for the supply, treatment, and distribution of water for Southern California, as determined by a study commissioned by the CEC.[31] (This study published recommended electricity intensities for the supply, treatment and distribution of water, as well as the treatment of wastewater, for Northern and Southern California.) Because the NRSP area will exclusively use locally-sourced groundwater, different factors were used to account for the energy embodied in the NRSP's water use. The different energy intensities associated with the Project's water supply sources are presented Note 2 in **Table 2-15d**.

The CalEEMod® default assumptions conservatively estimate the GHG emissions associated with the distribution of the wastewater generated by the Project's NRSP area, since the Newhall Ranch water reclamation plant (WRP) will be located within the NRSP area, and not outside the Project as assumed by the default electricity intensity factor for wastewater treatment.

The direct and indirect emissions associated with the Newhall Ranch WRP's wastewater treatment processes are captured through the wastewater emissions estimates for each of the Project land uses in the NRSP that will send wastewater to the WRP.[32] However, because the WRP is designed with the capacity to treat 6.8 million gallons per day of wastewater, **Table 2-15e** shows the calculation used to represent the direct and indirect emissions associated with the additional wastewater not already accounted for in **Table 2-15b** for the Newhall Ranch WRP treating wastewater up to this maximum designed capacity.

As shown in **Table 2-15d**, the Project was estimated to have 1,662 and 4,059 thousand gallons per year of indoor and outdoor water usages before applying the regulatory-based emission reduction for recycled outdoor water. After applying the regulatory reduction for recycled outdoor water, the Project was estimated to result in 6,158 $MTCO_2e$/year as shown in **Table 2-15d**.

2.3.4 Solid Waste

Municipal solid waste (MSW) is the amount of material that is disposed of by land filling, recycling, or composting. CalEEMod® calculates the indirect GHG emissions associated with waste that is disposed of at a landfill using waste disposal rates by land use and overall

[30] Embodied energy refers to the amount of energy that was used in delivering water to the specific land use.

[31] CEC. 2006. Refining Estimates of Water-Related Energy Use in California. Available at: http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF. Accessed: September 2016.

[32] Note that the building and mobile related emissions for the WRP are captured through the building energy and mobile related emissions, based on the anticipated land use to be developed.

composition. The emission estimates in this Project were based on City of Santa Clarita 2012 actual disposal rate.[33]

CalEEMod® uses the overall California Waste Stream composition to generate the necessary types of different waste disposed into landfills. The program quantifies the GHG emissions associated with the decomposition of the waste, which generates methane based on the total amount of degradable organic carbon. The program also quantifies the CO_2 emissions associated with the combustion of methane, if applicable. Default landfill gas concentrations were used as reported in Section 2.4 of the USEPA's AP-42. The IPCC has a similar method to calculate GHG emissions from MSW in its 2006 Guidelines for National Greenhouse Gas Inventories.

The analysis assumes that additional waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting to meet the statewide goal of 75 percent waste diversion.[34] The remainder of the waste not diverted will be disposed of at a landfill.

Various plans and regulations support achievement of the statewide diversion goal, including: (1) SW-1: Waste Diversion Goal of the County's Community Climate Action Plan (CCAP)[35], which calls for compliance with all State mandates associated with diverting at least 75 percent of waste from landfill disposal by 2020; (2) the County's Green Building Standards Code (Municipal Code Title 31), which includes a number of sustainability requirements that apply to waste diversion; and, (3) Assembly Bill (AB) 1826, which requires applicable commercial businesses to separate food scraps and yard trimmings, and arrange for recycling services for that organic waste. Various design elements of the Project's facilitated development also would further the achievement of AB 341, such as the provision and location of recycling receptacles.

GHG emissions from landfills are associated with the anaerobic breakdown of material. The CalEEMod® version 2013.2.2 solid waste module determines the GHG emissions associated with the disposal of solid waste into landfills in quantities that are based upon land use type according to waste disposal studies conducted by California Department of Resources Recycling and Recovery. For this module, CalEEMod® version 2013.2.2 used City of Santa Clarita actual disposal rate.[36]

GHG emissions associated with non-landfill diverted waste streams are not considered, because it is generally assumed that these diversions do not result in any appreciable amounts of GHG emissions when operated effectively.[37] These waste diversion alternatives may result in differences in life-cycle emissions of GHGs, but it is not appropriate to

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[33] CalRecycle. Available at: http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx. Accessed: September 2016.

[34] CalRecycle. 2013. California's 75 Percent Initiative. Available at: http://www.calrecycle.ca.gov/75percent/. Accessed: September 2016.

[35] LA County. 2015. Community Climate Action Plan. Page 4-8. Available at: http://planning.lacounty.gov/CCAP. Accessed: September 2016.

[36] Actual disposal rates are equivalent to a 50 percent diversion rate based on the jurisdiction-specific average of per capita generation rates for years 2003 to 2006. Therefore, the actual disposal rates were divided by 50 percent to estimate the disposal rate without any diversion.

[37] CARB. 2010. Local Government Operations Protocol. Chapter 9.4.

combine life-cycle emissions for only one category of emissions.[38] Biogenic CO_2 emissions were not included when CARB analyzed the GHG emissions inventory under AB 32. Therefore, they are not included in the Project emissions inventory.

The Unmitigated Project was estimated to generate 46,091 tons/year of solid waste and was estimated to result in 23,179 $MTCO_2e$/year as shown in **Table 2-16.**

2.3.5 Mobile Sources

The GHG emissions associated with on-road mobile sources are generated from residents, workers, customers, and delivery vehicles visiting the land use types in the Project. The GHG emissions associated with on-road mobile sources includes running and starting exhaust emissions. Running emissions are dependent on VMT. Starting emissions are associated with the number of starts or time between vehicle uses and the assumptions used in determining these values are described below. Ramboll Environ estimated mobile source emissions using the trip rates and trip length information specified in the Traffic Data provided by Stantec (**Appendix D**), which was derived using the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), the same model used to generate the trip information in the *Final Joint EIS/EIR for the RMDP and SCP Project*. The mobile source emissions were estimated using CalEEMod®.

The analysis includes the benefit of reductions from some adopted regulatory programs, which are accounted for as follows:

- AB 1493 ("the Pavley Standard") required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 and thereafter. CalEEMod® and EMFAC2014 include emission reductions for non-commercial passenger vehicles and light-duty trucks of model year 2017 – 2025.
- The ACC program, introduced in 2012, combines the control of smog, soot causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2015 through 2025. While this regulation has not been incorporated into CalEEMod®, EMFAC2014 includes reductions associated with this regulation that are represented in this analysis.
- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 1) were adopted in 2011 for medium and heavy duty trucks for model years 2014-2018.[39] This Heavy-Duty National Program is intended to reduce fuel use and GHG emissions from medium- and heavy-duty vehicles, semi-trucks, pickup trucks and vans, and all types and sizes of work trucks and buses in between. This regulation has not been incorporated into CalEEMod®; however, EMFAC2014 emission factors used for the analyses in this report include reductions associated with this regulation.

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[38] This inventory represents scope 1 and 2 emission categories. A life-cycle analysis of waste diversion would be a scope 3 inventory. CARB's Local Government Operations Protocol Version 1.1 (May 2010) clearly states that scope 3 emissions should not be combined with scope 1 and 2 emissions.

[39] USEPA, Office of Transportation and Air Quality. 2011. Available at: https://www3.epa.gov/otaq/climate/documents/420f11031.pdf. Accessed: September 2016.

- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 2) were adopted in 2016 for medium- and heavy-duty trucks for model years 2018 and beyond.[40] The Phase 2 program includes technology-advancing standards that substantially reduce GHG emissions and fuel consumption resulting in an ambitious, yet achievable, program that will allow manufacturers to meet the applicable standards over time, at reasonable cost, through a mix of different technologies. The Phase 2 program's standards will be phased in, beginning with model year 2021 and culminate with model year 2027. Since the introduction of this standard is very recent, associated reductions are included for mobile source emissions are calculated outside of CalEEMod® as shown in **Table 2-18b**.

2.3.5.1 Estimating Mobile Source Emissions

The Santa Clarita Valley Consolidated Traffic Model (SCVCTM) was used to estimate the total annual VMT from the Project, which, in turn, was used to estimate the Project mobile source GHG emissions. The SCVCTM is a computerized travel demand model jointly maintained by the City of Santa Clarita and County of Los Angeles in which existing and future land uses are quantified and corresponding traffic distribution patterns are estimated based on standardized modeling techniques. The following sections described the SCVCTM data and how it was used derive the inputs for CalEEMod®, which is the model used to estimate the GHG emissions.

2.3.5.2 SCVCTM Data

Project traffic forecasts were derived using the SCVCTM taking into account the five standardized trip types as described below:

- H-W: Home-based work trips
- H-S: Home-based shopping trips
- H-O: Home-based "other" (i.e., non-work, non-shopping) trips
- O-W: Other-based work trips
- O-O: Other-based other trips

Each trip type has unique characteristics, which are reflected in the SCVCTM. All trips that are generated within the SCVCTM limits are first categorized into one of the five trip types, as shown in **Table 2-17a**. The SCVCTM then calculates the distribution of the trips in each traffic analysis zone (TAZ) based on the trip type and the corresponding regional trip distribution factors utilized by the SCVCTM. From the resulting distribution of vehicle trips, an estimate of the average trip length for each trip type is derived, as shown in **Table 2-17b**. The underlying data provided by the traffic engineer, Stantec, is included in **Appendix D**.

2.3.5.3 Adjusting for Trip Generation Numbers

The daily tripend generation numbers derived from the traffic model, as shown in **Table 2-17a** overestimate actual trips by "double-counted" trips resulting from trip internalization. The double-counted trips in the traffic model need to be adjusted to reflect actual trip generation for purposes of the GHG emissions model. In other words, to present

[40] USEPA, Office of Transportation and Air Quality. 2016. Available at: https://www3.epa.gov/otaq/climate/documents/420f16044.pdf. Accessed: September 2016.

an accurate account of emissions from actual vehicle trips, the double-counted trips in the traffic model need to be adjusted to reflect actual trips.

Trip internalization (or internal trip capture) for planned communities or mixed-use developments describes the portion of trips generated by those developments that both begin and end within the development boundary. These trips, which have both tripends (origin and destination, or productions and attractions) within the project site, are known as internal trips. The internal trip capture rate is the percentage of tripends for trips that remain internal to the project site; in this case, the rate was derived by the SCVCTM.

The internal tripend percentages for the Project, by trip type, are illustrated in **Table 2-17c**; the overall tripend internalization rate calculated for the project by the SCVCTM is 47 percent. Planned communities like Newhall Ranch have higher internal trip capture rates than single-use developments. This is because such planned communities include different integrated, complementary, and interacting land uses, such as residential, school, recreation, office, retail, restaurants, and entertainment uses, such that residents or workers need not travel outside of the project boundaries for many services.[41]

In calculating total VMT, it is necessary in the case of a mixed-use development, such as this Project, to make an adjustment in order to avoid the double-counting of vehicle trips related to internal capture. For example, in the case of a roundtrip between an *on-site* residence and an *on-site* store, the traffic engineer produces trip generation estimates that include two tripends assigned to the residential portion of the Project (to and from) *and* two tripends assigned to the commercial portion of the project (to and from). Thus, a total of *four* tripends were assigned for one roundtrip by the resident to the store, even though there would be a total of only *two* trips – the resident driving from his/her home to the store to shop and then returning home again.

To avoid the double counting of VMT, one-half of the total number of daily internal tripends for each land use and trip type (e.g., in the case of residential H-W tripends, 11 percent [22 percent divided by 2]) is subtracted from the unadjusted daily number. This approach is applied to each individual land use (i.e., residential; non-residential; schools/parks) and each individual trip type (i.e., H-W, H-S, H-O, O-W, O-O), while also accounting for whether the land use is producing or attracting the vehicle trip. For example, as shown on **Table 2-17d**, the total daily H-W trips attributed to single-family dwellings for the Entrada planning area was reduced from 932 (see **Table 2-17a**) to 829 total daily trips (i.e., 932 daily trips was reduced by 11 percent, or 22 percent divided by 2). With this adjustment, the total amount of Project VMT can be determined without double-counting the internal trips.

Table 2-17e shows the estimated Project VMT. The VMT is calculated by multiplying the trip lengths as shown in **Table 2-17b** with the total number of daily trips as calculated in **Table 2-17d**.

2.3.5.4 Deriving CalEEMod® Inputs

The VMT calculations described above are used to derive the appropriate inputs for CalEEMod® to estimate the GHG emissions associated with mobile sources. To conduct the

[41] Ewing, Reid and Cervero, Robert. 2010. Travel and the Built Environment. Journal of the American Planning Association, 76: 3, 265 — 294. May 11.

analysis, CalEEMod® requires the input of average trip lengths and trip generation rates for each different land use type (e.g., single-family, condominium/townhouse, etc.). The average trip length is calculated by dividing the total daily VMT shown in **Table 2-17e** by the total daily trips shown in **Table 2-17d**. The trip generation rate, on the other hand, is calculated by dividing the total daily trip generation shown in **Table 2-17d** with the number of applicable units (e.g., number of dwelling units in the case of the single family dwelling use). The resulting Average Trip Length (in miles) and Trip Rate (number of trips per unit per weekday) is shown in **Table 2-17f**.

2.3.5.5 Summary of CalEEMod® Inputs

The CalEEMod® inputs for the mobile source emission estimates are shown in **Table 2-17g**. To estimate the annual VMT, CalEEMod® incorporates weekend trip rates. Since the SCVCTM trip generation data is a weekday trip generation rate estimate, the Project weekend trip rates were derived from the ratio of weekday to weekend trip rates from CalEEMod® applied to the SCVCTM adjusted weekday trip rates.

The average trip lengths shown in **Table 2-17f** were used as inputs as shown in **Table 2-17g**. While CalEEMod® has options to represent different trip lengths for different trip types, the same trip length was used for all trip types to ensure that the total annual VMT was accurately estimated by CalEEMod® consistent with the VMT estimates from the SCVCTM.

In calculating trip distribution, the SCVCTM does not distinguish between primary, pass-by, or diverted trips; instead, the traffic model simply calculates the origin and destination of all trips without distinction. From this distribution of vehicle trips, a trip length is derived that represents an average distance that accounts for all trips, both internal and external, and includes primary, pass-by, and diverted trips.

In conducting the GHG emissions analysis, CalEEMod®'s default approach is to specify a certain percentage of vehicle trips as pass-by or diverted trips and, thereby, assign a shorter trip length to such trips. However, to do so in this case would be to over-compensate for these shorter pass-by or diverted trips, which have shorter trip lengths already accounted for in the average trip length derived using the traffic model. To remedy this, all trips input into CalEEMod® for the GHG emissions analysis were input as primary trips, thereby effectively overriding the model's default settings to ensure that the VMT is accurately accounted for in CalEEMod®. This is illustrated in **Table 2-17g**, CalEEMod® Input Assumptions for Traffic, of the GHG Emissions Technical Report, which shows that 100 percent of the trips input into CalEEMod® were assumed to be primary trips, with zero percent assumed to be diverted and/or pass-by trips. Therefore, no adjustments (i.e., reductions) were applied as part of the analysis to account for diverted or pass-by trips additive to internal capture.

2.3.5.6 Mobile Source Emissions

The 2030 Unmitigated Project was estimated to generate 1,211,961,903 VMT/year and was estimated to result in 403,814 $MTCO_2e$/year as shown in **Table 2-18a**. The Unmitigated Project emissions include emissions reductions due to the NHTSA Phase 2 regulation of 7,041 $MTCO_2e$/year, as calculated in **Table 2-18b.**

3. PROJECT INVENTORY (UNMITIGATED)

While identified at length in Section 2 of this report, **Table 3-1** also summarizes the relevant modeling assumptions used in this report to estimate the emissions associated with the Unmitigated and Mitigated Project conditions.

As previously documented, the Project site – in its existing condition – emits 11,021 $MTCO_2e$ per year, and the Unmitigated Project emits 526,103 $MTCO_2e$ per year (see **Table ES-1** and **Table ES-2**). These are also summarized in **Table 3-2**.

4. MITIGATION MEASURES

This section quantifies the emissions reduction benefits of the thirteen mitigation measures developed for the Project that are recommended for adoption in the AEA.

4.1 List of Mitigation Measures

The 13 mitigation measures set forth below are recommended for system-wide implementation across the applicant's land holdings where development would be facilitated by California Department of Fish and Wildlife's Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP) Project.

<u>Building Energy Efficiency</u>

- GCC-1: Prior to the issuance of residential building permits, the Project applicant or its designee shall submit a Zero Net Energy Confirmation Report (ZNE Report) prepared by a qualified building energy efficiency and design consultant to Los Angeles County for review and approval. A ZNE Report shall demonstrate that the residential development within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the California Code of Regulations (CCR) has been designed and shall be constructed to achieve Zero Net Energy, as defined by the California Energy Commission in its 2015 Integrated Energy Policy Report, or otherwise achieve an equivalent level of energy efficiency, renewable energy generation or greenhouse gas emissions savings.

  A ZNE Report may, but is not required to:

  (1) Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the residential and commercial buildings, as well as the private recreation centers and public facilities, within a neighborhood/community, or a subset thereof.

  (2) Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve Zero Net Energy. For example, short falls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings, or off-site renewable energy generation. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-based strategies even if the building on its own may not be designed to achieve ZNE.

  (3) Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings.

- GCC-2: Prior to the issuance of building permits for commercial development and private recreation centers, and prior to the commencement of construction for the public facilities, respectively, the Project applicant or its designee shall submit a Zero Net Energy Confirmation Report (ZNE Report) prepared by a qualified building energy efficiency and design consultant to Los Angeles County for review and approval. A ZNE Report shall demonstrate that the commercial development, private recreation centers and public facilities within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR have been designed and shall be constructed to achieve Zero Net Energy, as defined by the California Energy Commission in its 2015 Integrated Energy Policy Report, or otherwise achieve an equivalent level of energy efficiency, renewable energy generation or greenhouse gas emissions savings. ("Commercial development" includes retail, light industrial, office, hotel, and mixed-use buildings. "Public facilities" are fire stations, libraries, and elementary middle/junior high and high schools.)

A ZNE Report may, but is not required to:

(1) Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the residential and commercial buildings, as well as the private recreation centers and public facilities, within a neighborhood/community, or a subset thereof.

(2) Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve Zero Net Energy. For example, short falls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings, or off-site renewable energy generation. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-based strategies even if the building on its own may not be designed to achieve ZNE.

(3) Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings.

- GCC-3: Prior to the issuance of private recreation center building permits, the Project applicant or its designee shall submit swimming pool heating design plans to Los Angeles County for review and approval. The design plans shall demonstrate that all swimming pools located at private recreation centers on the RMDP/SCP Project site have been designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.

Mobile Sources

- GCC-4: Prior to the issuance of residential building permits, the Project applicant or its designee shall submit building design plans, to Los Angeles County for review and approval, which demonstrate that each residence within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR shall be equipped with a minimum of one single-port electric vehicle charging station. Each charging station shall achieve a similar or better functionality as a Level 2 charging station.

  Additionally, prior to the issuance of the first building permit for the RMDP/SCP Project site, the Project applicant or its designee shall establish and fund a dedicated account for the provision of subsidies for the purchase of zero emission vehicles, as defined by the California Air Resources Board. The Project applicant or its designee shall provide proof of the account's establishment and funding to Los Angeles County.

  The dedicated account shall be incrementally funded, for each village-level project, in an amount that equals the provision of a $1,000 subsidy per residence – on a first-come, first-served basis – for 50 percent of the village's total residences subject to application of Title 24, Part 6, of the CCR.

- GCC-5: Prior to the issuance of commercial building permits, the Project applicant or its designee shall submit building design plans, to Los Angeles County, which demonstrate that the parking areas for commercial buildings on the RMDP/SCP Project site shall be equipped with electric vehicle charging stations that provide charging opportunities to 7.5 percent of the total number of required parking spaces.

("Commercial buildings" include retail, light industrial, office, hotel and mixed-use buildings.)

The electric vehicle charging stations shall achieve a similar or better functionality as a Level 2 charging station. In the event that the installed charging stations utilize more superior functionality/technology than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by electric vehicle charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range miles per hour.

- GCC-6: The Newhall Ranch Transportation Demand Management Plan (TDM Plan), located in **Appendix E**, shall be implemented in order to reduce vehicle miles traveled resulting from Project build out with oversight from Los Angeles County. The TDM Plan is designed to influence the transportation choices of residents, students, employees, and visitors, and serves to enhance the utilization of alternative transportation modes both on and off the Project site through the provision of incentives and subsidies, expanded transit opportunities, bikeshare and carshare programs, technology-based programs, and other innovative means. Accordingly, the TDM Plan identifies key implementation actions that are critical to the effectiveness of the vehicle miles traveled-reducing strategies, as well as timeline and phasing requirements, monitoring standards, and performance metrics and targets tailored to each of the strategies.

  In accordance with the TDM Plan, a non-profit Transportation Management Organization (TMO) or equivalent management entity shall be established to provide the services required, as applicable.

- GCC-7: Prior to the issuance of traffic signal permits, the Project applicant or its designee shall work with Los Angeles County and the California Department of Transportation (DOT), as applicable, to facilitate traffic signal coordination along:

  (1) State Route 126 from the Los Angeles County line to the Interstate 5 north-bound ramps;

  (2) Chiquito Canyon Road, Long Canyon Road, and Valencia Boulevard within the RMDP/SCP Project site;

  (3) Magic Mountain Parkway from Long Canyon Road to the Interstate 5 north-bound ramps; and,

  (4) Commerce Center Drive from Franklin Parkway to Magic Mountain Parkway.

  In order to effectuate the signal synchronization and specifically the operational and timing adjustments needed at affected traffic signals, the Project applicant or its designee shall submit traffic signal plans for review and approval, and/or pay needed fees as determined by Los Angeles County or the California Department of Transportation, as applicable.

- GCC-8: Consistent with the parameters of the Newhall Ranch Transportation Demand Management Plan, the Project applicant or its designee shall provide Los Angeles County with proof that funding has been provided for the purchase, operation and maintenance of electric school buses in furtherance of the school bus program identified in the

Project's Transportation Demand Management Plan. The proof of funding shall be demonstrated incrementally as the school bus program is paced to village-level occupancy and student enrollment levels.

- GCC-9: Prior to the issuance of the first 2,000th residential building permit within the RMDP/SCP Project site and every 2,000th residential building permit thereafter, the Project applicant or its designee shall provide Los Angeles County with proof that it has provided a subsidy of $100,000 per bus for the replacement of up to 10 diesel or compressed natural gas transit buses with electric buses to the identified transit provider(s).

<u>Construction Sources</u>

- GCC-10: Prior to issuing grading permits for village-level development within the RMDP/SCP Project site, Los Angeles County shall confirm that the Project applicant or its designee shall fully mitigate the related construction and vegetation change GHG emissions (the "Incremental Construction GHG Emissions") by relying upon one of the following compliance options, or a combination thereof, in accordance with the Newhall Ranch GHG Reduction Plan (GHG Reduction Plan; see **Appendix F**):

  (1) Directly undertake or fund activities that reduce or sequester GHG emissions and retire the associated GHG reduction credits in a quantity equal to the Incremental Construction GHG Emissions; or

  (2) Obtain and retire carbon credits that have been issued by a recognized and reputable carbon registry, as described in the GHG Reduction Plan, in a quantity equal to the Incremental Construction GHG Emissions.

<u>Off-Site Measures</u>

- GCC-11: Prior to the issuance of building permits for every 100 residential units or 100,000 square feet of commercial development for each village-level project, the Project applicant or its designee shall provide proof of funding of the proportional percentage of the Building Retrofit Program (Retrofit Program), as included in **Appendix G**, to Los Angeles County. ("Commercial development" includes retail, light industrial, office, hotel and mixed-use buildings.) Building retrofits covered by the Retrofit Program can include, but are not limited to: cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, light bulb replacement), energy efficient appliances, energy efficient windows, insulation, and water conservation measures.

  The Retrofit Program shall be implemented within the geographic area defined to include Los Angeles County and primarily within disadvantaged communities, as defined by the Retrofit Program, or in other areas accepted by the Los Angeles County Planning Director. Funding shall be applied to implement retrofits strategies identified in the Retrofit Program or other comparable strategies accepted by the Los Angeles County Planning Director.

- GCC-12: Prior to the issuance of the first building permit for the RMDP/SCP Project site, the Project applicant or its designee shall provide Los Angeles County with proof of installation of electric vehicle charging stations capable of serving 20 off-site parking spaces. Thereafter, the Project applicant or its designee shall provide Los Angeles County with proof of installation of electric vehicle charging stations prior to the issuance of residential and commercial building permits per the following ratios: one (1) off-site parking space shall be served by an electric vehicle charging station for every 30 dwelling units, and one (1) off-site parking space shall be served by an electric vehicle charging station for every 7,000 square feet of commercial development. ("Commercial development" includes retail, light industrial, office, hotel and mixed-use buildings.) Off-site electric vehicle charging stations capable of servicing 2,036 parking spaces would be required if the maximum allowable development facilitated by the RMDP/SCP Project occurs; fewer electric vehicle charging stations would be required if maximum build-out under the RMDP/SCP Project does not occur.

The electric vehicle charging stations shall achieve a similar or better functionality as a Level 2 charging station and may service one or more parking spaces. In the event that the installed charging stations utilize more superior functionality/technology than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by electric vehicle charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range miles per hour.

The electric vehicle charging stations shall be located within the geographic area defined to include Los Angeles County, and in areas that are generally accessible to the public. For example, the charging stations may be located in areas that include, but are not limited to, retail centers, employment centers, recreational facilities, schools, and other categories of public facilities.

- GCC-13: Prior to issuing building permits for development within the RMDP/SCP Project site, Los Angeles County shall confirm that the Project applicant or its designee shall fully offset the Project's remaining (i.e., post-CEQA mitigation) operational GHG emissions over the 30-year Project life associated with such building permits ("Incremental Operational GHG Emissions") by relying upon one of the following compliance options, or a combination thereof, in accordance with the Newhall Ranch GHG Reduction Plan (GHG Reduction Plan; **Appendix F**):

  (1) Demonstrate that it has directly undertaken or funded activities that reduce or sequester GHG emissions ("Direct Reduction Activities") that are estimated to result in GHG reduction credits, as described in the GHG Reduction Plan, and retire such GHG reduction credits in a quantity equal to the Incremental Operational GHG Emissions;

  (2) Provide a guarantee that it shall retire carbon credits issued in connection with Direct Reduction Activities in a quantity equal to the Incremental Operational GHG Emissions;

  (3) Undertake or fund Direct Reduction Activities and retire the associated carbon credits in a quantity equal to the Incremental Operational GHG Emissions; or

  (4) If it is impracticable to fully offset Incremental Operational Emissions through the Direct Reduction Activities, the Project Applicant or its designee may purchase and retire carbon credits that have been issued by a recognized and reputable carbon registry, as described in the GHG Reduction Plan, in a quantity equal to the Incremental Operational GHG Emissions.

4.1.1 Mobile-Related Emissions Reduction Methodology

The combined emission reductions related to the mitigation measures addressing mobile source emissions need to be estimated sequentially, in order to avoid double counting the emission reductions. For purposes of this analysis, the emission reductions are calculated and applied in the following order: (1) Transportation Demand Management (TDM) Plan, (2) incentives for residential electric vehicles (EVs); and (3) traffic signal synchronization. The emission reductions due to commercial development area EV charging stations, and the utilization of electric transit and school buses, are independent of the TDM Plan's reductions, since they are based on a fixed number of replaced vehicles, and do not need to be accounted for in a particular sequence.

4.2 Mitigation Measures

The following section describes the estimates for the GHG reductions.

4.2.1 GCC-1. Residential ZNE

The residential development within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR shall be designed and constructed to achieve Zero Net Energy (ZNE), as defined by the CEC in its 2015 Integrated Energy Policy Report.[42,43] Specifically, this mitigation assumes the following definition of ZNE: A ZNE building is one "where the value of the net amount of energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building at the level of a single 'project' seeking development entitlements and building code permits measured using the California Energy Commission's Time Dependent Valuation metric."[44]

Achieving ZNE represents "a unique opportunity to manage energy costs and meet greenhouse gas (GHG) reduction goals." [45] CEC proposes to meet ZNE through a variety of energy efficiency improvements coupled with on-site renewable energy generation. While energy efficient design required by "future updates of the building and appliance energy efficiency standards" serves to minimize energy demand, CEC anticipates that "onsite renewable electricity generation such as solar photovoltaic systems or wind-driven electricity generators" will generate the remainder of a building's energy needs to achieve ZNE.[46,47]

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[42] California Energy Commission. Integrated Energy Policy Report. 2015. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-01/TN210527_20160224T115023_2015_Integrated_Energy_Policy_Report__Small_Size_File.pdf. Accessed: September 2016.

[43] As stated in the CEC IEPR, the ZNE goal is also supported "by the CPUC in the Long-Term Energy Efficiency Strategic Plan, by California Air Resources Board (ARB) in the First Update to the Climate Change Scoping Plan, and in Governor Brown's Clean Energy Jobs Plan."

[44] The CEC and CPUC concept of TDV "is based on the cost for utilities to provide energy at different times." This valuation accounts for the variable value of electricity and natural gas based on hour, day, or season.

[45] California Energy Commission. Achieving Energy Savings in California Buildings. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-400-2011-007/CEC-400-2011-007-SD.pdf. Accessed: September 2016.

[46] California Energy Commission. Achieving Energy Savings in California Buildings. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-400-2011-007/CEC-400-2011-007-SD.pdf. Accessed: September 2016.

[47] California Energy Commission. Integrated Energy Policy Report. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf. Accessed: September 2016.

Estimated GHG Reduction

The main variables contributing to the calculated GHG benefit of achieving residential ZNE are as follows:

- Residential Building Prototypes: The residential building prototypes modeled by ConSol are used as the basis for this estimate of GHG emission reductions from achieving ZNE (see **Appendix C**). ConSol studied two residential building prototypes in its analysis that are representative of the development that would be facilitated by the Project, a single family home and a multifamily home, and evaluated how each residential home could achieve ZNE.
- Residential Energy Efficiency: ConSol's modeling estimates the energy consumption of a home that is designed to achieve ZNE by exceeding the 2016 Title 24 standards through the combined use of building envelope efficiencies and on-site Photovoltaic (PV) systems.[48] The electricity and natural gas consumption of this "2019 Title 24 Standards" home are shown **Appendix C**, and the GHG reductions from upgrading the 2016 Title 24 homes to 2019 Title 24 (approximated) homes are shown in **Table 4-1a and 4-1b**.
- PV System Design: The estimated GHG reductions achieved through residential ZNE are based, in part, on the additional PV system requirements as estimated by ConSol. Specifically, ConSol calculated the rated PV system size required for the single family and multifamily building prototypes to achieve ZNE using the CEC's California Solar Initiative Incentive Calculator. Based on ConSol's analysis, a 5.0-kW system per single family home and a 21.9-kW system per multifamily home were required to meet ZNE. These PV systems are sized to achieve ZNE by exceeding the Energy Design Rating (EDR) and Time Dependent Valuation (TDV) energy consumption of the modeled homes, as described in more detail in **Appendix C**. The calculations shown in **Table 4-1c** estimate the GHG reduction from installing the PV systems necessary to achieve ZNE.
- Emission Factors: The analysis is based on the assumption that the 50 percent RPS for 2030 is achieved.

Table 4-1d shows the total GHG reduction achieved through the Project's development of ZNE residences.

4.2.2 GCC-2. Non-Residential ZNE

The non-residential development within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR shall be designed and constructed to achieve Zero Net Energy, as defined by the CEC, or otherwise achieve an equivalent level of energy efficiency or greenhouse gas emissions savings.[49,50]

Estimated GHG Reduction

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[48] The ConSol modeling represents one option of many that may be feasible to achieve residential ZNE.

[49] California Energy Commission. Integrated Energy Policy Report. 2015. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-01/TN210527_20160224T115023_2015_Integrated_Energy_Policy_Report__Small_Size_File.pdf. Accessed: September 2016.

[50] As stated in the CEC IEPR, the ZNE goal is also supported "by the CPUC in the Long-Term Energy Efficiency Strategic Plan, by California Air Resources Board (ARB) in the First Update to the Climate Change Scoping Plan, and in Governor Brown's Clean Energy Jobs Plan."

The main variables contributing to the calculated GHG benefit of achieving residential ZNE are as follows:

- Non-Residential Building Prototypes: The commercial building prototypes modeled by ConSol are used as the basis for this estimate of GHG emission reductions from achieving ZNE (see **Appendix C**). ConSol studied three commercial building prototypes in its analysis that are representative of the development that would be facilitated by the Project: an office building, a light industrial building, and a retail building. ConSol's modeling showed that ZNE could be achieved through a combination of additional energy efficiency design improvements beyond the 2016 Title 24 Standards and adequate on-site PV systems.[51] The estimated GHG reductions by building prototype were mapped to the land uses represented for the Project. For example, "regional shopping center" was mapped to retail, and "industrial park"[52] was mapped to industrial.
- Non-Residential Energy Efficiency: In ConSol's analysis, the estimated improvements in building design are applied to each building prototype in order to estimate the GHG reductions. Given the variability in energy usage in the building prototypes, the required energy efficiency improvements vary across the three prototypes modeled. **Table 4-2a** and **4-2b** presents the GHG reductions from improving building energy efficiencies beyond the 2016 Title 24 Standards to 2019 Title 24 Standards (approximated).
- PV System Design: The estimated GHG reductions achieved through additional PV system requirements, as estimated by ConSol, contribute to the overall GHG reduction resulting from the Project's development of ZNE commercial buildings. As shown in **Table 4-2c**, ConSol identified the rated PV system size required for each of the building prototypes to achieve ZNE. **Table 4-2c** also identifies the annual GHG reduction attributable to the PV systems identified for the commercial building prototypes.
- Emission Factors: The analysis is based on the assumption that the 50 percent RPS for 2030 is achieved.

Table 4-2d shows the total GHG reduction achieved through the Project's development of ZNE non-residential buildings.[53]

4.2.3 GCC-3. Swimming Pool Heating

All swimming pools located at the private recreation centers on the RMDP/SCP Project site shall be designed and constructed to use solar water heating or other technology with an equivalent level of energy efficiency (e.g., use solar energy (or equivalent) to replace natural gas for purposes of heating the swimming pool waters).

Estimated GHG Reduction

The main variables contributing to the calculated GHG benefit of solar heating the swimming pools are as follows:

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[51] The ConSol modeling represents one option of many that may be feasible to achieve commercial ZNE.

[52] Note that building related emissions (i.e., energy, water, and solid waste) generated by the WRP are captured in the "industrial park" square footage (please see **Table 3-1** of this Technical Report). Project-related traffic trips, including the WRP trips, are encompassed in the Santa Clarita Valley Consolidated Traffic Model.

[53] No GHG benefits were included for shifting load from peak to off-peak hours.

- Energy sources: The swimming pools are assumed to use electricity for filters and pumps and use natural gas for water heating for the Unmitigated Project. The mitigation measure requires that solar heating (or equivalent) replaces all natural gas heating at the swimming pools.
- Energy use factor: The electricity and natural gas energy usage factors for swimming pools are based on the energy consumption of filter pumps and water heaters included in a published pools study by the City of Oakland (Pools Study),[54] and scaled to represent energy consumption per year per volume of the pool. The Pools Study data included pool volume, number of heaters, heater rating, operation schedule, and annual electricity usage. Annual Natural Gas Usage was calculated by multiplying the number of hours per day, days per year, heaters, and the heating rating. The calculated Annual Natural Gas Usage was adjusted to account for (1) the higher average ambient temperature in Southern California compared to Oakland (i.e., an average temperature of 55.5°F for Oakland and 63.3°F for Santa Clarita), and (2) savings from newer energy efficient heater standards, i.e., Ramboll Environ assumed that the Oakland pools used 78 percent efficient heaters, which is the minimum efficiency legally required (see 10 CFR Part 431). According to the U.S. Department of Energy, newer pools are likely to use heaters with 89-95 percent efficiency.[55] Ramboll Environ conservatively assumed 90 percent efficiency for Santa Clarita pool heaters, resulting in a 12 percent savings over the Pool Study data. Average Annual Electricity Usage was calculated from the Annual Electricity Usage of the Pool Study data divided by the swimming pools total pool volume.
- Emission Factors: The utility emission factors are consistent with the analyses for the project.
- Swimming pool size: All the swimming pools are assumed to be 50 meters x 25 yards x 8 feet.[56]

The calculations shown in **Table 2-14a** estimate the GHG reduction from replacing natural gas with solar energy for heating the swimming pools. The GHG emissions reduction is the difference between the total GHG emissions from the unmitigated and mitigated emission estimates.

4.2.4 GCC-4. Residential EV Chargers and Vehicle Subsidy

Each residence within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR shall be equipped with a minimum of one single-port electric vehicle charging station. Each charging station will achieve a similar or better functionality as a Level 2 charging station. Additionally, a $1,000 subsidy shall be available for 50 percent of the RMDP/SCP Project site's residences subject to application of Title 24, Part 6, of the CCR, on a first-come, first-served basis, for the purchase of a zero emission vehicle, as defined by the California Air Resources Board.

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[54] City of Oakland/Oakland Unified School District. October 2006. Energy Efficient Commercial Pool Program; Preliminary Facility Reports for DeFremery Pool, Fremont Pool, Live Oak Pool, Lyons Pool, and Temescal Pool.

[55] Energy.gov. Energy Saver. Available at: http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13170. Accessed: September 2016.

[56] ENVIRON International Corporation. October 2009. Prepared for The Newhall Land and Farming Company, Valencia, CA. Climate Change Technical Addendum: Resource Management and Development Plan Spineflower Conservation Plan.

These measures will complement the Project's commitments to install Level 2 charging stations for 7.5 percent of the parking spaces within the RMDP/SCP Project site and to install Level 2 charging stations at publicly available areas within the Southern California Association of Governments region. Through these commitments, the Project will help support an increasingly inter-connected web of charging infrastructure, making it easier to own and use EVs, consistent with goals aimed to increase EV penetration.

Mobile GHG emissions are a major component of overall land use development emission inventories. Conventional gasoline and diesel vehicles emit GHGs from the tailpipe, whereas EVs minimize these emissions. EVs including battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) comprise a growing fraction of the passenger vehicles on the roads in California, and EV adoption is expected to greatly increase over the upcoming decades due in part to improvements in battery technology and public initiatives and goals. In addition to the discussion below, a study that forecasts electric vehicle purchases in the Newhall Ranch Community is included in **Appendix H**.

A variety of external factors will complement Newhall Ranch's commitment to facilitate the use of EVs and the growth of electric vehicle penetration. There are dozens of electric vehicle models available for purchase in California, and the costs of batteries and BEVs continues to decrease. Batteries for electric vehicles have seen rapidly decreasing costs in recent years, averaging roughly fourteen percent annually from 2007 to 2014.[57] Furthermore, the impact of learning-by-doing cost reductions (resulting from a doubling in production), is between six and nine percent. This has resulted in the industry-wide average cost of a battery pack declining from $1000/kWh to $410/kWh (2007 to 2014), and an even greater reduction among market-leading battery electric vehicle manufacturers, to around $300/kWh. There are statewide and regional initiatives to help fund electric vehicle and infrastructure purchases, and ambitious goals to increase the number of EVs on the road by 2025. Peer-reviewed studies show that vehicle electrification is necessary to achieve California's long-term greenhouse gas reduction goals. Reliable access to EV chargers is an important factor contributing to people's comfort levels when buying electric vehicles.

<u>Statewide Initiatives</u>

- As discussed in Section 2.2.2.7 above, California has programs and initiatives already in place to further the progress of EV penetration. These include vehicle fuel efficiency standards, executive orders, and purchase incentives.

<u>Electric Vehicles Necessary to Achieve Statewide GHG Goals</u>

As described in Section 2.2.2, California has goals to reduce GHGs to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. Meeting these GHG reduction goals will require an increase in vehicle electrification, according to several recent studies. In a 2012 *Science* paper on achieving California's 2050 goal,[58] Williams concludes that "[t]he most important finding of this research is that, after other emission reduction measures were employed to the maximum feasible extent, there was no alternative to

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[57] Nykvist, B. and Nilsson, M. Rapidly falling costs of battery packs for electric vehicles. *Nature: Climate Change* (2015), 5, pg. 329-332.

[58] Williams, J.H., et al. 2012. The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity. *Science, 335.*

widespread switching of direct fuel uses (e.g., gasoline in cars) to electricity in order to achieve the reduction target." The study parameters displace 75 percent of light-duty gasoline use with EVs and PHEVs in 2050. A 2015 UC Davis study[59] reiterates that EVs are needed to reach California's 2050 goal and also federal and national GHG reduction targets, stating that "passenger vehicles will not be able to achieve an 80 percent GHG reduction…using hydrocarbon fuels."

Widespread EV adoption is necessary *before* 2050 to achieve California's 2030 goals. Energy + Environmental Economics (E3) developed a modeling tool called PATHWAYS to chart the GHG impact of different scenarios of fuel usage, technology adoptions, and other California policy changes that may affect future GHG emissions. They used PATHWAYS to show potential pathways to meeting the 2030 and 2050 California state goals and national goals. The pathways presented to meet California's 2030 goal[60] include six to seven million ZEVs and PHEVs on the road by 2030, which is significantly higher than the EO B-16-2012 target of 1.5 million EVs by 2025. E3 shows that EVs should have a new vehicle market share of 35 to 40 percent by 2025 and over 50 percent by 2030. Based on E3's sensitivity analysis, zero-emission vehicles are the single most important contributor to GHG reductions for the 2050 goal.

<u>Residential EV Charging is an Important Factor for Increasing EV Penetration</u>

While charging stations at work places and retail stores are becoming more widespread, most EV charging has historically taken place at homes, and will continue to do so.[61] An average vehicle spends 90 percent of its time at home and work, with over 70 to 80 percent of EV charging taking place at home, followed by workplace charging.[62] [63] In fact, the availability and accessibility of a plug at home increases a person's propensity to buy an electric vehicle.[64] National Renewable Energy Laboratory's assessment for the CEC[65] found that home charging is the predominant location for charging, followed by

[59] Brown, R., et al. 2015. Achieving California's Greenhouse Gas Goals: A Focus on Transportation. Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-15-14. http://www.its.ucdavis.edu/research/publications/publication-detail/?pub_id=2529. Accessed: September 2016.

[60] Energy + Environmental Economics (E3). 2015. California PATHWAYS: GHG Scenario Results. April 6. https://ethree.com/documents/E3_PATHWAYS_GHG_Scenarios_Updated_April2015.pdf. Accessed: September 2016.

[61] Holland, B. 2013. How important is charging infrastructure to EV adoption? GreenBiz. January 17. Available at: (https://www.greenbiz.com/blog/2013/01/17/how-important-charging-infrastructure-ev-adoption). Accessed: September 2016.

[62] Holland, B. 2013. How important is charging infrastructure to EV adoption? GreenBiz. January 17. Available at: (https://www.greenbiz.com/blog/2013/01/17/how-important-charging-infrastructure-ev-adoption). Accessed: September 2016.

[63] Leemput, N. et al. 2015. MV and LV Residential Grid Impact of Combined Slow and Fast Charging of Electric Vehicles. Energies (2015), 8, 1760-1783. Available at: http://www.mdpi.com/1996-1073/8/3/1760. Accessed: September 2016.

[64] Hidrue, M.K., G.R. Parsons, W. Kempton, and M.P. Gargner. 2011. Willingness to pay for electric vehicles and their attributes. Resource Energy Econ. doi:10.1016/j.reseneeco.2011.02.002. Available at: (http://www.udel.edu/V2G/resources/HidrueEtAl-Pay-EV-Attributes-correctedProof.pdf). Accessed: September 2016.

[65] National Renewable Energy Laboratory (NREL). 2014. California Statewide Plug-In Electric Vehicle Infrastructure Assessment. Available at: (http://www.energy.ca.gov/2014publications/CEC-600-2014-003/CEC-600-2014-003.pdf). Accessed: September 2016.

workplace/retail charging, then public charging. In the near term, the CEC believes that "can't miss" locations are homes and multi-unit dwellings, followed by workplaces.[66]

Research shows that access to charging infrastructure at home plays an important role in decisions regarding purchase of EVs. A 2013 study conducted by the Institute of Transportation Studies at UC Davis explored the characteristics of 1,200 households who actually purchased a new plug-in vehicle in California during 2011-2012, with the overall target population of the survey being new PEV owners in California.[67] This study reveals that purchasing a PEV is associated in most cases with the installation of electric vehicle supply equipment (EVSE) at home and the ability to plug the car to the power for charging.[68] In 2011, a report released by the National Research Council of the National Academies on the barriers to electric vehicle deployment pointed to lack of charging infrastructure deployment as one of the barriers to EV deployment, with 21.3 percent of survey respondents stating concern about access to charging infrastructure as the barrier.[69] Another study revealed that when asked about the critical factors that may influence their decision, the highest percentage (63 percent) of respondents cited the ability to charge at home [other factors included battery range, total operating cost, government subsidy].[70]

The Plug-in Electric Vehicle Owner Survey, managed by the Center for Sustainable Energy, further highlighted the importance of subsidized or discounted chargers.[71] Of those with an installed Level 2 charger at home, 64 percent received a free or subsidized charger and 80 percent of them found the importance of the subsidy to install a Level 2 charger influential. Thus, a home with an already installed (free) charger might influence residents to purchase a PHEV. Another study reveals that 83.1 percent of the participants of a consumer survey on plug-in hybrid electric vehicles stated that it would increase their comfort in purchasing or leasing a PHEV by "a lot" or would be "a deciding factor" if they have recharge facilities at home for easy overnight recharge.[72] This evidence suggests that

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[66] Ibid.

[67] Tal, G., M.A. Nicholas, J. Woodjack, and D. Scrivano. February 2013. Who Is Buying Electric Cars in California? Exploring Household and Vehicle Fleet Characteristics of New Plug-In Vehicle Owners. Institute of Transportation Studies at University of California, Davis. Research Report – UCD-ITS-RR-13-02. Available at: (https://merritt.cdlib.org/d/ark:%252F13030%252Fm56692z3/1/producer%252F2013-UCD-ITS-RR-13-02.pdf). Accessed: September 2016.

[68] Tal, G., M.A. Nicholas, J. Woodjack, and D. Scrivano. February 2013. Who Is Buying Electric Cars in California? Exploring Household and Vehicle Fleet Characteristics of New Plug-In Vehicle Owners. Institute of Transportation Studies at University of California, Davis. Research Report – UCD-ITS-RR-13-02. Available at: https://merritt.cdlib.org/d/ark:%252F13030%252Fm56692z3/1/producer%252F2013-UCD-ITS-RR-13-02.pdf. Accessed: September 2016.

[69] Slavin, M.I. December 2013. Drivers and Barriers to Electric Vehicle Adoption. Published in EV World. Available at: http://evworld.com/article.cfm?storyid=2076. Accessed: September 2016.

[70] Accenture. 2011. Plug In Electric Vehicles Changing Perceptions, Hedging Bets - Accenture end-consumer survey on the electrification of private transport. Available at: https://www.accenture.com/us-en/~/media/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Industries_9/Accenture-Plug-in-Electric-Vehicle-Consumer-Perceptions.pdf. Accessed: September 2016.

[71] California Center for Sustainable Energy (CCSE) and California Environmental Protection Agency - Air Resources Board (ARB). 2012. California Plug-in Electric Vehicle Owner Survey. Available at: https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California%20Plug-in%20Electric%20Vehicle%20Owner%20Survey%20Report-July%202012.pdf. Accessed: September 2016.

[72] Krupa, J.K., D.M. Rizzo, M.J. Eppstein, D.B. Lanute, D.E. Gaalema, K. Lakkaraju, and C.E. Warrender. 2014. Analysis of a Consumer Survey on Plug-in Hybrid Electric Vehicles. Transportation Research Part A 64 (2014)

investment in a residential charging infrastructure could result in an increased probability of a household purchasing an EV. Another study also identified the importance of residential parking and charging, suggesting that:[73]

- Fleet penetration of EVs beyond 22 percent will require residential infrastructure investment to increase access to outlets near home parking;
- Fleet penetration beyond 39 percent may require significant residential infrastructure investment because many households will need to upgrade their electrical infrastructure to charge multiple vehicles;
- Fleet penetration beyond 47 percent will require residential charging to be available for renters; and
- Fleet penetration beyond 56 percent may require not only new chargers but also additional residential parking, with associated logistics, space implications, and environmental impacts.

The program to install charging stations in residential areas has the potential to fulfill an important component to facilitate the level of conversion to EV that will be necessary if California is to meet its stated penetration targets and associated emission reduction goals. Increased market penetration often results in a 'neighbor effect' of adoption, meaning that as more people see neighbors and friends successfully adopting EVs, the fewer perceived barriers remain.[74] In short, as EVs become more common due to reduced costs, increased availability of infrastructure and other incentives, members of the neighborhood/community without an EV will be increasingly more likely to purchase and use an EV.

Subsidies Incentivise EV Adoption

Given the rapid pace of EV technological improvement and the many policy efforts to encourage EV adoption, economists and policy researchers have considered the effectiveness of rebates and other incentives with influencing the rate of EV adoption. Research suggests that rebates and other policies that reduce the overall price of EV purchase and operations are one of the most effective at increasing rates of adoption.[75] Policies that provide other benefits such as increasing the availability of public chargers, carpool lane access, and emissions testing exemptions were also shown to be effective. Economic models of EV purchasing behavior suggest that price is still a significant barrier to

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14-34. Available at: http://www.sciencedirect.com/science/article/pii/S0965856414000500. Accessed: September 2016.

[73] Traut, E.J., T.C. Cherng, C. Hendrickson, and J.J. Michalek. 2013. US Residential Charging Potential for Electric Vehicles. Transportation Research Park D 25 (2013) 139-145. Available at: http://www.cmu.edu/me/ddl/publications/2013-TRD-Traut-etal-Residential-EV-Charging.pdf. Accessed: September 2016.

[74] Nelson-Nygaard Consulting Associates Inc. 2014. Removing Barriers to Electric Vehicle Adoption by Increasing Access to Charging Infrastructure. Seattle Office of Sustainability & Environment. Available at: http://www.seattle.gov/Documents/Departments/OSE/FINAL%20REPORT_Removing%20Barriers%20to%20EV%20Adoption_TO%20POST.pdf. Accessed: September 2016.

[75] Jin, Lingzhi, Stephanie Searle, and Nic Lutsey, 2014. Evaluation of State-Level U.S. Electric Vehicle Incentives, White Paper for the International Council on Clean Transportation, October. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_state-EV-incentives_20141030.pdf. Accessed: September 2016.

adoption of EVs. Many models have evaluated the decision to select EVs compared with internal combustion engine vehicles (ICEVs), as a function of cost, range, income of the buyer, driving habits, price of gas, recharging infrastructure, 'greenness' including the influence of neighbors and friends among other determinants of EV adoption.

Rebates and other incentives fundamentally work to reduce the cost of purchasing and then operating an EV.[76] While policies differ from state to state,[77] adoption of EVs does correlate strongly to subsidies and rebates offered.

California is currently one of the largest markets for EVs in the United States, and has, in fact, been referred to as "America's capital of plug-in cars."[78] Based on sales figures tracked by the California Air Resources Board, Californians buy approximately 40 percent of all plug-in vehicles sold in the United States[79] (36 percent in 2015).[80]

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[76] Clinton, Bentley, Austin Brown, Carolyn Davidson, and Daniel Steinberg, 2015. Impact of Direct Financial Incentives in the Emerging Battery Electric Vehicle Market: A Preliminary Analysis. National Renewable Energy Laboratory. Department of Economics, University of Colorado – Boulder. February.

[77] See DeShazo, J.R., CC Song, Michael Sin, and Thomas Gariffo, 2015. State of the Sates' Plug-in Electric Vehicle Policies, UCLA Luskin School of Public Affairs, March. Available at: http://innovation.luskin.ucla.edu/sites/default/files/EV_State_Policy.pdf. Accessed: September 2016.

[78] Jeff Cobb. February 2016. California Plug-in Sales Led the US Last Year with Nearly Five-Times Greater Market Share. HybridCars.com. Available at: http://www.hybridcars.com/california-plug-in-sales-led-us-last-year-with-nearly-five-times-greater-market-share/. Accessed: September 2016.

[79] Dana Hull. September 2014. California charges ahead with electric vehicles. San Jose Mercury News. Available at: http://www.mercurynews.com/business/ci_26493736/california-charges-ahead-electric-vehicles. Accessed: September 2016.

[80] Extrapolated from Data Provided in: California New Car Dealers Association (CNCDA). February 2016. California New Vehicle Registrations Expected to Remain Above 2 Million Units in 2016. Registrations through December 2015 since 2011. Revised figures for 2014. Available at: http://www.cncda.org/CMS/Pubs/Cal%20Covering%204Q%2015.pdf. Accessed: September 2016.

AND

Electric Drive Transportation Association (EDTA). 2016. Electric Drive Sales Dashboard. Sales figures sourced from HybridCars.com and direct reports submitted by EDTA member companies. Available at: http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952#sthash.5QBifqpG.EyVW8gqf.dpuf and http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952. Accessed: September 2016.

EV Usage Rate Exceeds Conventional Vehicles

An annual survey of California PEV owners[81] shows that even though many households with EVs also own a conventional gasoline or diesel car, they use the PEV for over 85 percent of work commute, personal errands, and shopping, while the conventional vehicle is the primary vehicle for vacation travel. The following year's survey shows that the average PEV owner drives 28.9 miles per day, which is well within the electric range of many eligible PEVs available in 2013.[82]

A survey conducted by the Union of Concerned Scientists (UCS)[83] found that 64 percent of respondents live in a household with two or more vehicles. This is consistent with a survey of EV users, which reported that 79.4 percent of EV owners and potential owners had two or more vehicles in the household.[84] Conventional wisdom as well as economic theory suggests that when households have at least one EV and one ICEV, they favour the EV and use the more costly-to-drive ICEV for longer distance trips on the weekend, for hauling, or if there is a need for more than five passengers.[85] One detailed study found exactly this in a broad survey of different types of households that have EVs. For example, one-car households that switch from one ICEV to one EV showed very little difference in daily driving distances nor the number of daily trips taken when they invested in an EV.[86] But the households that had one (or more) EV and at least one ICEV all showed that after three months of EV ownership, the daily distance driven for the ICE declined, and the EV increased so that the EV usage was about 45 percent higher in use. This is consistent with survey data from Norway, which showed that 90 percent of EV owners said that the EV car "Completely" or "To a High Degree" replaced their ICEV, with 66 percent of the respondents living in two car households.[87] This is also consistent with preliminary data from Ford, which also suggests that with time – six months – the frequency of use of the EV increases, and the ICEV use decreases.[88]

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[81] California Center for Sustainable Energy. 2012. California Plug-in Electric Vehicle Owner Survey. Available at: https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California%20Plug-in%20Electric%20Vehicle%20Owner%20Survey%20Report-July%202012.pdf. Accessed: September 2016.

[82] California Center for Sustainable Energy. 2013. California Plug-in Electric Vehicle Driver Survey Results. Available at: https://energycenter.org/sites/default/files/docs/nav/transportation/cvrp/survey-results/California_Plug-in_Electric_Vehicle_Driver_Survey_Results-May_2013.pdf. Accessed: September 2016.

[83] Union of Concerned Scientists. 2013. Electric Vehicle Survey Methodology and Assumptions; American Driving Habits, Vehicle Needs, and Attitudes toward Electric Vehicles, December. Available at: http://www.ucsusa.org/sites/default/files/legacy/assets/documents/clean_vehicles/UCS-and-CU-Electric-Vehicle-Survey-Methodology.pdf. Accessed: September 2016.

[84] Shahan, Zachary. 2015. Electric Cars: What Early Adopters and First Followers Want. Important Media. Available at: http://cleantechnica.us2.list-manage.com/subscribe?u=a897522b53d0853c85abbf9fa&id=a264ba3c49. Accessed: September 2016.

[85] UCS. 2013.

[86] Hwang, Sang-kyu, and Sang-hoon Son. 2015. Electric Vehicle User Mobility Analysis with Dashboard Camera in Jeju Island, Korea. Paper presented at Electric Vehicle Symposium, EVS28, in Kintex, Korea, May 3-6, 2015.

[87] Haugneland, Petter, and Hans Havard Kvisle. 2013. Norwegian Electric Car User Experiences, paper presented at EVS27, Barcelona Spain, November.

[88] Castrucci Alexandria, Mike. 2015. Good Habits Pay Dividends for Electric Car Drivers. Posted on October 7, 2013. Available at: http://www.mikecastruccialexandria.com/blog/electric-car-driving-habits/; Based on data from MyFord Mobile app. Available at: https://www.myfordmobile.com/content/mfm/app/site/my-car/home.html. Accessed: September 2016.

Accordingly, as EV penetration increases, the amount of miles driven for residential trips by EV compared to conventional vehicles will grow at a disproportionately higher rate because households with EVs will tend to rely on the EV for a large majority of their trips.

Estimated GHG Reduction

The main variables contributing to the calculated GHG benefit of installing residential EV chargers and providing EV vehicle subsidies include the following assumptions:

- Electric Vehicle Penetration: Based on the discussion above, a variety of factors will contribute to high rates of electric vehicle penetration near Newhall Ranch. First, there are already dozens of electric vehicle models available for purchase in California, and the costs of batteries continue to decrease. Second, there are numerous statewide and regional initiatives to help fund electric vehicle and infrastructure purchases, and many policy goals aim to increase the number of EVs because vehicle electrification is critical to achieving California's long-term greenhouse gas reduction goals. Third, reliable access to EV chargers is an important factor contributing to buying electric vehicles. Therefore, the Project's mitigation measures requiring that EV charging infrastructure be made widely available and the provision of EV purchase incentives will encourage EV ownership and use. Given the market trends, policy goals, infrastructure growth and incentives, this analysis assumes that half the residential units facilitated by the RMDP/SCP will have an EV by 2030.
- Electrical Vehicle Usage Rate: As explained above, even though many households with EVs also own a conventional gasoline or diesel car, they use the EV for over 85 percent of work commute, personal errands, and shopping, while the conventional vehicle is the primary vehicle for vacation travel. Therefore, the evidence supports an assumption that households with an EV will have a very high usage rate for residential trips, even if the households also own a conventional vehicle.
- EV Miles Driven From Residential Land Uses: Based on the commitment to install EV chargers in all dwelling units, the subsidy for EV purchase, published peer reviewed studies regarding EV usage behavior and EV adoption trends, and the state's ongoing effort to encourage EV adoption, it is anticipated that at least half of the dwelling units in the Project will have an EV. As discussed above, studies have shown that households tend to preferentially use the EV. Numerous other factors (e.g., declining costs of EVs) are also anticipated to push the number of EV's used by Project residents to be even higher than that estimated here. Thus, the overall effect of this mitigation measure is estimated to displace 50 percent of the miles driven from residential land uses from traditional gasoline/diesel vehicles with electric vehicles.
- Emission Factors: The analysis is based on the assumption that the 50 percent RPS for 2030 is achieved, and the gasoline/diesel CO_2 emission factors are derived using California Air Resource Board's EMFAC2014 software model.

The calculations shown in **Table 4-3** estimate the GHG reduction from replacing conventional gasoline or diesel light-duty vehicles with electric vehicles. The table calculates the estimated emission reduction for each mile driven in an electric vehicle compared to the default emission factor calculated by CalEEMod® in the mobile emissions inventory. To ensure that the Project benefit is in addition to the existing EVs that may be present, the emission factor and emissions inventory incorporates the existing EVs. This ensures that the benefit of VMT that is reduced due to the Project EVs reduces emissions relative to the unmitigated inventory without double counting the benefit of the existing EVs. The calculation then estimates the average annual residential traffic, after the reduction in VMT due to transportation demand management strategies is applied. The GHG emissions reduction is the total miles displaced by EVs from this measure multiplied by the emissions reduction per mile. The remaining project traffic GHG emissions (289,921 $MTCO_2e$/year) results after subtracting the GHG emissions reductions due to residential EV (53,724 $MTCO_2e$/year, respectively) from the remaining mobile GHG emissions after TDMs (343,646 $MTCO_2e$/year).

4.2.5 GCC-5. Commercial Development Area EV Chargers

The parking areas for commercial buildings on the RMDP/SCP Project site shall be equipped with electric vehicle charging stations that provide charging opportunities to 7.5 percent of the total number of required parking spaces. ("Commercial buildings" include retail, light industrial, office, hotel, and mixed-use buildings.) The electric vehicle charging stations shall achieve a similar or better functionality as a Level 2 charging station. This mitigation measure will complement the Project's residential commitment to install charging station for each single family and multifamily dwelling unit and subsidize the purchase of electric vehicles. Overall, the Project will help support an increasingly inter-connected web of charging infrastructure; the combination of commercial development area and residential charging stations will encourage EV ownership and use.

As discussed in greater detail in the Residential EV Charger section above, a variety of factors will contribute to high rates of electric vehicle penetration near Newhall Ranch. There are already dozens of electric vehicle models available for purchase in California, and the costs of batteries continue to decrease. There are statewide and regional initiatives to help fund electric vehicle and infrastructure purchases, and ambitious goals to increase the number of EVs on the road by 2025. Peer-reviewed studies show that vehicle electrification is necessary to achieve California's long-term greenhouse gas reduction goals. Reliable access to EV chargers is an important factor contributing to buying electric vehicles.

<u>Estimated GHG Reduction</u>

The main variables contributing to the calculated GHG benefit of installing commercial development area EV charging stations are as follows:

- <u>Electric Vehicle Penetration and Usage Rate</u>: Charge station usage will vary from zero hours per day to 24 hours per day for each electric vehicle charging station. Ramboll Environ assumes a ten hour per day charger usage rate when in consideration of the anticipated increase in EV adoption throughout the state.[89] As discussed in above, the state will need to further its efforts to improve and increase EV penetration rates such that the prevalence of EV will be greater and the use of the EV chargers will continue to increase for EV chargers in a variety of locations. Furthermore, as discussed by Bakker[90] the fundamental challenge with EV adoption is range anxiety.

[89] Chang, D., et al. 2012. Financial Viability of Non-Residential Electric Vehicle Charging Stations. Available at: http://innovation.luskin.ucla.edu/content/financial-viability-non-residential-electric-vehicle-charging-stations. Accessed: September 2016.

[90] Bakker, J.J. 2011. Contesting range anxiety: The role of electric vehicle charging infrastructure in the transportation transition. Available at: http://alexandria.tue.nl/extra2/afstversl/tm/Bakker_2011.pdf. Accessed: September 2016.

- Charge Rate: The charge rate refers to the amount of power supplied from the charger to the car battery per hour, or the range of miles the charger enables the car to travel per hour (RPH). The US Department of Energy (USDOE) writes that a Level 2 charging station is expected to charge 10 to 20 miles of RPH, depending on the circuitry.[91] ChargePoint commercial Level 2 electric vehicle charging stations charge up to 25 RPH.[92] DC "fast charging" stations and future three-phase charging options allow for much higher rates of charging.[93] These charge rates are influenced based on the technology for the actual charge rate of kilowatts (kW) per hour and also the vehicle fuel efficiency (discussed further below). The technology for chargers, batteries, and electric vehicle efficiency is expected to improve into the future. Thus, we have assumed that the charging stations can provide 25 miles of driving range per hour of charging.
- Electric Vehicle Fuel Economy: Electric vehicle fuel economy reflects the amount of electricity needed to drive a certain distance. Based on 2013 USDOE data, the range of fuel economy in currently available electric vehicles ranges from 25 to 40 kilowatt-hours per 100 miles (kWh/100 mi).[94] This fuel economy varies depending on the vehicle model, with examples of a 2012 Nissan Leaf achieving 34 kWh/100 mi and a Tesla Roadster achieving 21.7 kWh/100 mi. The technology for batteries and electric vehicle fuel economy is expected to improve into the future. Thus, we have assumed that the electric vehicles will achieve a fuel economy of 25 kWh/100 mi to represent the near-future electric vehicle fleet.
- Emission Factors: The analysis is based on the assumption that the 50 percent RPS for 2030 is achieved, and the gasoline/diesel CO_2 emission factors are derived using California Air Resource Board's EMFAC2014 software model.

The calculations shown in **Table 4-4** estimate the GHG reduction from replacing conventional gasoline or diesel light-duty vehicles with electric vehicles. The table calculates the estimated range that each charging station is estimated to provide to electric vehicles in miles per year, based on the charge station usage and charge station rate. The range for one station is multiplied by the total number of stations in the mitigation commitment. This results in a total number of miles per year that will be driven in electric vehicles instead of conventional vehicles. The difference between the total GHG emissions from the conventional vehicles and the GHG emissions from the electric vehicles is the emissions benefit from the charging stations.

4.2.6 GCC-6. Transportation Demand Management Program

The Newhall Ranch Transportation Demand Management (TDM) Plan (see **Appendix E** shall be implemented in order to reduce vehicle miles traveled resulting from Project build out. The TDM Plan is designed to influence the transportation choices of residents, students, employees, and visitors, and serves to enhance the utilization of alternative transportation modes both on and off the Project site through the provision of incentives

[91] US Department of Energy (USDOE) Alternative Fuels Data Center. 2016. Charging Equipment. Available at: http://www.afdc.energy.gov/fuels/electricity_infrastructure.html. September 2016.

[92] ChargePoint. 2015. Available at: http://www.chargepoint.com/news/2015/0702/defining-rph-miles-range-per-hour-an-ev-charging-station-delivers/. Accessed: September 2016.

[93] USDOE. *op. cit*.

[94] USDOE. 2015. Available at: http://www.afdc.energy.gov/fuels/electricity_benefits.html. Accessed: September 2016.

and subsidies, expanded transit opportunities, bikeshare and carshare programs, technology-based programs, and other innovative means.

Estimated GHG Reduction

The TDM program reduces annual vehicle miles traveled by 14.9 percent from the Unmitigated Project. Since mobile GHG emissions are directly proportional to vehicle miles traveled, this equates to a 14.9 percent reduction in mobile emissions. This reduction calculation is shown in **Table 4-5**.

4.2.7 GCC-7. Traffic Signal Synchronization

The applicant or its designee shall work with the applicable agency(ies) with jurisdiction over the local roadway network to facilitate traffic signal coordination throughout the Project area. This program is described in detail in **Appendix I**.

Estimated GHG Reduction

The traffic signal coordination program reduces mobile GHG emissions by 3.28 percent from the Unmitigated Project. This percent was determined using California Air Pollution Control Officers Association (CAPCOA) GHG reduction methodology for measure RPT-2.[95] The percent reduction is applied sequentially with the other mobile GHG mitigation measures to avoid double-counting. This reduction calculation is shown in **Table 4-6**.

4.2.8 GCC-8. Electric School Bus Funding Program

The applicant or its designee shall provide funding for electric school buses.

Estimated GHG Reduction

The main variables contributing to the calculated GHG benefit of the Project's commitment to subsidizing the conversion to electric school buses are as follows:

- Annual Average VMT: The annual average VMT refers to the number of miles a vehicle runs each year. For school buses and transit buses, this metric is derived using California Air Resource Board's EMFAC2014 software model, based on vehicle model years and speeds in Los Angeles County. EMFAC2014 data shows that school buses' annual VMT is 13,780 miles per year (mi/yr) in 2030.
- Electric Bus Fuel Economy: Electric vehicle fuel economy reflects the amount of electricity needed to drive a certain distance. Buses from two existing electric bus manufacturers are Proterra and BYD are used to estimate electric bus fuel economy. Proterra's 40-foot and BYD's electric bus fuel economy is 1.7 kilowatt-hours per mile (kWh/mi) [96] and 1.87 kWh/mi,[97] respectively. The fuel economy used to calculate the electric bus electricity usage was an average of Proterra and BYD's specification: 1.8 kWh/mi. The technology for batteries and electric vehicle fuel economy is expected to improve into the future, so using current electric bus specifications is a conservative assumption.

[95] CAPCOA. Available at: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf. Accessed: September 2016.

[96] Proterra. Available at: http://byd.com/na/ebus/ebus.html. Accessed: September 2016.

[97] BYD. Available at: http://byd.com/na/ebus/ebus.html. Accessed: September 2016.

- Emission Factors: The analysis is based on the assumption that the 50 percent RPS for 2030 is achieved, and the gasoline/diesel CO_2 emission factors are derived using California Air Resource Board's EMFAC2014 software model.

  The data from the California Air Resource Board's EMFAC2014 software model provided the GHG emission factors for the CNG buses. The CNG emission factors were identified through data from the web-based EMFAC2014 tool and the desktop application. The web-based EMFAC2014 model provided an 'urban transit diesel emission factor' which represents a composite of both CNG and diesel buses. To get separated CNG and diesel emission factors for urban transit buses, the EMFAC2014 Desktop Application was run in the Project-Level Assessment Mode to generate an estimate of the ratio of CNG and diesel buses. For the EMFAC2014 Desktop Application analysis, the temperature and relative humidity were based on the EMFAC2014 Los Angeles County default values. The data from the web-based EMFAC2014 program and the ratio of CNG and diesel buses from the EMFAC Desktop application were used to derive the CNG bus emission factor for 2030. Conservatively, emissions from idling and starting the engine for the CNG buses were not included in the emissions calculations.

The calculations shown in **Table 4-7** estimate the GHG reduction from replacing CNG school buses with electric buses for 2030. The tables show the total number of miles per year that will be driven in electric buses instead of CNG buses, the GHG emissions if CNG buses were used, and the GHG emissions for the total miles based on electric vehicle fuel economy and the electric grid emission factor. The difference between the total GHG emissions from the CNG buses and the GHG emissions from the electric buses is the emissions benefit from the electric bus replacement of CNG buses.

4.2.9 GCC-9. Subsidy for Electric Transit Buses

The applicant or its designee shall provide a subsidy of $100,000 per bus for the replacement of up to 10 diesel or compressed natural gas transit buses with electric buses.

Estimated GHG Reduction

The calculation is the same as for school buses, except for transit buses; EMFAC2014 data shows annual VMT of 38,089 mi/yr in 2030.

The calculations shown in **Table 4-8** estimate the GHG reduction from replacing CNG transit buses with electric buses for 2030. The tables show the total number of miles per year that will be driven in electric buses instead of CNG buses, the GHG emissions if CNG buses were used, and the GHG emissions for the total miles based on electric vehicle fuel economy and the electric grid emission factor. The difference between the total GHG emissions from the CNG buses and the GHG emissions from the electric buses is the emissions benefit from the electric bus replacement of CNG buses.

4.2.10 GCC-10. Carbon Credits Construction and Vegetation Change Emissions

Prior to obtaining grading permits for village-level development within the RMDP/SCP Project site, the Project applicant or its designee will fully mitigate the related construction and vegetation change GHG emissions.

Estimated GHG Reduction

The estimated emissions for construction and vegetation change will be offset.

4.2.11 GCC-11. Off-Site Retrofit Program

The Project applicant or its designee shall fund the Building Retrofit Program (Retrofit Program), located in **Appendix G**. Building retrofits covered by the Retrofit Program can include, but are not limited to: cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, light bulb replacement), energy efficient appliances, energy efficient windows, insulation, and water conservation measures.

<u>Estimated GHG Reduction</u>

The Building Retrofit Program provides funding that will be used to implement various improvements to the built environment. **Table 4-9** provides a reasonable calculation of how the Building Retrofit Program may achieve the estimated GHG reductions (see also **Appendix J**). The emission estimates illustrate a conservative estimate of how much the funding may achieve in terms of GHG emission reductions. The emission ratios in the Retrofit Program are based on an estimate of the 80 percent of the emission reductions being achieved in connection with the Project's residential development, and 20 percent of the emission reductions being achieved in connection with the Project's with commercial development.

4.2.12 GCC-12. Off-Site Electric Vehicle Chargers

The Project applicant or its designee shall install, or cause to be installed, an off-site electric vehicle charging stations. Off-site electric vehicle charging stations capable of servicing 2,036 parking spaces would be required if the maximum allowable development facilitated by the RMDP/SCP Project occurs; fewer electric vehicle charging stations would be required if maximum build-out under the RMDP/SCP Project does not occur. The electric vehicle charging stations shall achieve a similar or better functionality as a Level 2 charging station and may service one or more parking spaces.

<u>Estimated GHG Reduction</u>

The estimated GHG reductions follow the same methodology as described above (see **Table 4-4** and Section 4.2.5). The installation ratios are based on an estimate of the ratio of residential and non-residential emissions without off-site electric vehicle chargers reduction. This results in one parking spot serviced by an EV charging station per 30 dwelling units, and one parking spot serviced by an EV charging station per 7,000 square feet of commercial non-residential. It is estimated that 2,036 parking spaces will have access to a charging station to estimate the GHG emission reductions benefit.

4.2.13 GCC-13. GHG Reduction Plan

This section evaluates the amount of GHG reductions that will be required to fully offset all remaining GHG emissions to zero over the Project life, defined as 30 years. [98] The analysis here estimates how the reductions over time would be accounted in determining the necessary GHG reductions.

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[98] The SCAQMD GHG Working Group proposed that off-site mitigation could be used to mitigate GHG emissions from a project under CEQA. The SCAQMD indicated that offsets should have a 30-year project life unless a shorter project life could be ensured based on a binding permit condition or other legal limit. SCAQMD, 2008. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2. Accessed: September 2016.

The figure shown in **Appendix K** illustrates the interpolation of the emissions modeled in CalEEMod® starting in 2020 through the Project life for the last piece of development completed in 2030 to estimate the GHG offsets required. The reason for the 2020 CalEEMod® model run is to develop factors to account for the anticipated reduction in emissions due to existing regulatory programs (i.e., the reductions of energy and water-related emissions due to the 50 percent RPS and the reductions of mobile-related emissions due to the fleet fuel efficiency improvements predicted by EMFAC2014) that will reduce GHG emissions over the lifetime of the Project. The full description of offsets calculation methodology is shown in **Table K-1** through **Table K-9** in **Appendix K**. This analysis shows that the offsets requirement for the Project will be 234,228 MT per year for the Project life. This estimate is considered a conservative estimate as it is anticipated that further regulatory programs and technology will develop in the future to further reduce GHG emissions.

Prior to obtaining building permits for an incremental level of development within the Project site, the incremental operational GHG emissions over the Project life associated with such building permits that must be offset (the "Incremental Operational GHG Emissions") will be equal to the sum of: (1) the number of proposed residential units covered by the applicable building permit multiplied by 108.89 $MTCO_2e$; and (2) every thousand square feet ("TSF") of proposed commercial development covered by the applicable building permit multiplied by 506.86 $MTCO_2e$. For example, to obtain a building permit for 75 residential units and 40,000 square feet of commercial development, the Incremental Operational GHG Emissions would be: 75 units x 108.89 $MTCO_2e$/unit + 40 TSF. x 506.86 MTCO2e/TSF = 28,441 $MTCO_2e$.

5. PROJECT INVENTORY (MITIGATED)

As previously documented, the Project site – in its existing condition – emits 11,021 $MTCO_2e$ per year, and the Mitigated Project emits zero $MTCO_2e$ per year (see **Tables ES-1** and **ES-2**). In addition, **Table 5-1** summarizes the GHG reductions associated with the mitigation measures and **Table 5-2** summarizes the Unmitigated and Mitigated Project GHG emissions.

TABLES

Table ES-1. Summary of Existing On-Site GHG Emissions
RMDP/SCP
Los Angeles County, California

Category	Existing CO_2e Emissions (MT/yr)[1]
CH_4 emissions associated with oil wells	3,790
Energy use associated with oil wells	3,682
Energy use associated with water	2,987
N_2O emissions associated with fertilizer use	412
Emissions associated with diesel fuel usage	152
Total	11,021

Notes:
[1] Emissions calculations shown in Appendix A.

Abbreviations:

CH_4 - methane
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
N_2O - nitrous oxide
yr - year

Table ES-2. Summary of 2030 Project GHG Emissions
RMDP/SCP
Los Angeles County, California

Category[1]	Total CO_2e Emissions[2]				
	Unmitigated Project				Mitigated Project
	ES	NRSP	VCC	Total	Total
	MT/yr				
Area	30	337	0.09	367	367
Energy Use	4,835	68,790	9,155	82,780	3,312
Residential Zero Net Energy (GCC-1)	--	--	--	--	-30,656
Commercial Zero Net Energy (GCC-2)	--	--	--	--	-25,456
Swimming Pool Heating (GCC-3)	--	--	--	--	-22,356
Building Retrofit Program (GCC-11)	--	--	--	--	-1,000
Water Use	1,295	6,379	516	8,190	8,190
Waste Disposed	1,438	18,141	3,601	23,179	23,179
Traffic	26,294	354,557	22,963	403,814	202,011
Residential EV Chargers and Vehicle Subsidy (GCC-4)	--	--	--	--	-53,724
Commercial Development Area EV Chargers (GCC-5)	--	--	--	--	-39,109
Transportation Demand Management Plan (GCC-6)	--	--	--	--	-60,168
Traffic Signal Synchronization (GCC-7)	--	--	--	--	-8,212
Electric School Bus Program (GCC-8)	--	--	--	--	-157
Electric Transit Bus Subsidy (GCC-9)	--	--	--	--	-619
Off-Site EV Chargers (GCC-12)	--	--	--	--	-39,813
Sub-Total	**33,892**	**448,204**	**36,234**	**518,330**	**237,059**
Construction Amortized[3]	413	5,578	446	6,437	6,437
Vegetation Amortized[3]	28	1,312	-5	1,335	1,335
Carbon Credits (GCC-10)	--	--	--	--	-7,773
Sub-Total	**442**	**6,889**	**441**	**7,773**	**0**
GHG Reduction Plan (GCC-13)	--	--	--	--	-237,059
Total	**34,333**	**455,093**	**36,676**	**526,103**	**0**

Notes:

[1] CO_2e emissions were primarily estimated using CalEEMod® version 2013.2.2.

[2] CO2e includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective AR4 global warming potentials. Source: Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4): Climate Change 2007. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016.

[3] One-time emissions from construction and vegetation removal were amortized over a 30-year period. Source: SCAQMD. 2009. Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13. August. Available at: http://sfprod.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf?sfvrsn=2. Accessed: September 2016.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CEQA - California Environmental Air Quality Act
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
ES - Entrada South
EV - electric vehicle
GHG - greenhouse gases
MT - metric tonnes
N_2O - nitrous oxide
NRSP - Newhall Ranch Specific Plan
SCAQMD - South Coast Air Quality Management District
VCC - Valencia Commerce Center
yr - year

Table ES-3. Summary of GHG Emissions Reductions due to Mitigation Measures (2030)
RMDP/SCP
Los Angeles County, California

Emission Reductions due to Mitigation Measures		
		CO_2e Emissions Reduction Due to Mitigation Measure[2,3]
Mitigation Measure Number[1]	**Mitigation Measure Description**	**MT / yr**
GCC-1	Residential Zero Net Energy	30,656
GCC-2	Commercial Zero Net Energy	25,456
GCC-3	Swimming Pool Heating	22,356
GCC-4	Residential EV Chargers and Vehicle Subsidy	53,724
GCC-5	Commercial Development Area EV Chargers	39,109
GCC-6	Transportation Demand Management Plan	60,168
GCC-7	Traffic Signal Synchronization	8,212
GCC-8	Electric School Bus Program	157
GCC-9	Electric Transit Bus Subsidy	619
GCC-10	Carbon Credits	7,773
GCC-11	Building Retrofit Program	1,000
GCC-12	Off-Site EV Chargers	39,813
GCC-13	GHG Reduction Plan	237,059
	Total Emission Reductions from Mitigation Measures	**526,103**

Notes:
[1] These mitigation measures are described in more detail in the technical report.
[2] CO_2e emissions were primarily estimated using CalEEMod® version 2013.2.2.
[3] CO_2e includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective AR4 global warming potentials. Source: Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4): Climate Change 2007. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016.

Abbreviations:
CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EV - electric vehicle
GHG - greenhouse gases
MT - metric tonnes
N_2O - nitrous oxide
yr - year

Table 1-1. List of Applicable Regulatory Standards
RMDP/SCP
Los Angeles County, California

Project-Related Emissions Sources	Adopted Regulatory Standards	Reduction Benefits Quantified in Analysis?	
		Yes	No
Construction	California Cap-and-Trade Program		√
	USEPA/NHTSA Standards Phase 1 (through model year 2018)		√
	California ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling		√
	California In-Use Off-Road Regulation	√	
	California In-Use On-Road Heavy-Duty Diesel Vehicles Regulation		√
Vegetation Amortization	County CCAP Land Conservation and Tree Planning (LC)		√
Building Energy Consumption	Energy Independence and Security Act		√
	California Cap-and-Trade Program		√
	California Title 20 Standards – 2015		√
	California Title 24, Part 6 Standards – 2016	√	
	California Title 24, Part 11 Standards (CalGreen)		√
	California Renewable Portfolio Standard (50% in 2030)	√	
	California AB 1470 (Solar Water Heating)	√	
	Million Solar Roofs		√
	Los Angeles County Green Building Standards (Title 31)		√
Traffic (Medium- and Heavy-Duty Trucks)	California Cap-and-Trade Program		√
	USEPA/NHTSA Standards Phase 1 (through model year 2018)	√	
	USEPA/NHTSA Standards Phase 2 (through model year 2030)	√	
	California ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling		√
	California In-Use On-Road Heavy-Duty Diesel Vehicles Regulation		√
	SCAQMD Rule 1193 (Clean On-Road Residential And Commercial Refuse Collection Vehicles)		√
	SCAQMD 1195 (Clean On-Road Buses)		√
Traffic (Passenger Vehicles, cars & light-duty trucks)	California AB 1493/Pavley Standards (through model year 2016)	√	
	California Advanced Clean Cars Standards (through model year 2025)	√	
	California Cap-and-Trade Program		√
	California Low Carbon Fuel Standard		√
	USEPA/NHTSA CAFE Standards (through model year 2021)	√	
Solid Waste	California AB 341 Standards (Solid Waste Diversion)	√	
	California Cap-and-Trade Program		√
Water Use	California Cap-and-Trade Program		√
	California Title 24, Part 11 Standards (CalGreen)	√	
	California Renewable Portfolio Standard (50% in 2030)	√	
	California Recycled Water Policy	√	

Abbreviations:
AB - Assembly Bill
ATCM - Airborne Toxic Control Measure
CAFE - Corporate Average Fuel Economy
CCAP - Community Climate Action Plan
NHTSA - National Highway Traffic Safety Administration
SCAQMD - South Coast Air Quality Management District
USEPA - United States Environmental Protection Agency

Table 2-1. Project Land Uses and Square Footage
RMDP/SCP
Los Angeles County, California

Area	Project Assumptions[1]		Land Use Category	CalEEMod® Analysis		
				Land Use Subtype[2]	Land Use Unit Amount	Size Metric
ES	Condo/townhouse general	1,297 DU	Residential	Condo/Townhouse	1,297	DU
	Elementary/Middle School[3]	60 TSF	Educational	Elementary School	750	STU
	Commercial Office	62.5 TSF	Commercial	General Office Building	62.5	TSF
	Recreational Center	6.7 TSF	Recreational	Health Club	6.7	TSF
	Hotel[4]	200 TSF	Recreational	Hotel	286	rooms
	Commercial Center	187.5 TSF	Retail	Regional Shopping Center	187.5	TSF
	Single Family Housing	428 DU	Residential	Single Family Housing	428	DU
NRSP	Condo/townhouse general	11,201 DU	Residential	Condo/Townhouse	11,201	DU
	Elementary/Middle School[3]	357.6 TSF	Educational	Elementary School	4,500	STU
	Fire Station	33.1 TSF	Industrial	General Light Industry	33.1	TSF
	Commercial Office	1,023 TSF	Commercial	General Office Building	1,023	TSF
	Golf Course	180 acres	Recreational	Golf Course	180	AC
	Recreational Center	43.3 TSF	Recreational	Health Club	43.3	TSF
	High School[3]	142.4 TSF	Educational	High School	2,500	STU
	Hotel[4]	100 TSF	Recreational	Hotel	143	rooms
	Industrial Park[5]	756 TSF	Industrial	Industrial Park	756	TSF
	Library	36.0 TSF	Educational	Library	36.0	TSF
	Business Park	324 TSF	Commercial	Office Park	324	TSF
	Commercial Center	3,247 TSF	Retail	Regional Shopping Center	3,247	TSF
	Single Family Housing	8,316 DU	Residential	Single Family Housing	8,316	DU
VCC	Industrial Park	2,300 TSF	Industrial	Industrial Park	2,300	TSF
	Business Park	1,100 TSF	Commercial	Office Park	1,100	TSF

Notes:

[1] Project assumptions based on Project description.

[2] Land uses as defined in CalEEMod®. When an exact mapping of a land use was not available in CalEEMod® relative to the "Project Assumptions," a land use with similar emission characteristics was chosen.

[3] Number of students in elementary/middle school and high school are consistent with trip rate assumptions. The elementary school in Entrada South has 750 students. The middle school and 4 elementary schools in NRSP have 900 students each. The high school in NRSP has 2,500 students.

[4] Consistent with trip rate assumptions, the hotel listed square footage is converted to rooms using a factor of 700 sqft GFA/Room.

[5] The building-related emissions for the Newhall Ranch Water Reclamation Plant (WRP) (i.e., energy, water, solid waste) are included in the NRSP "Industrial Park" square footage. The traffic-related emissions are captured in the Santa Clarita Valley Consolidated Traffic Model. The direct and indirect emissions associated with the wastewater treatment are captured through the wastewater emission estimates for each of the other Project land uses that will send wastewater to the WRP.

Abbreviations:

AC - acre
CalEEMod® - CALifornia Emissions Estimator MODel
DU - dwelling units
ES - Entrada South
GFA - gross floor area
NRSP - Newhall Ranch Specific Plan
sqft - square feet
STU - students
TSF - thousand square feet
VCC - Valencia Commerce Center

Table 2-2. Analyzed Emissions Inventories

RMDP/SCP

Los Angeles County, California

Year	Emissions Inventory Description
2030	Unmitigated Project
2030	Mitigated Project

Table 2-3. Construction Schedule Assumptions - Stages 1 through 6
RMDP/SCP
Los Angeles County, California

Stage	Construction Phase[1]	Number of Work Days[2]	Start Date	End Date[4]
Stage 1[3]	Mass Grading - Utility Corridor	261	3/1/2018	2/28/2019
	Mass Grading	885	3/1/2018	7/21/2021
	Trenching - Sewer	681	11/1/2018	6/10/2021
	Trenching - Storm Drain	340	3/1/2019	6/18/2020
	Trenching - Water	374	5/1/2019	10/5/2020
	Paving - Street	230	10/13/2020	8/30/2021
	Paving	1,109	12/1/2020	7/17/2028
	Building Construction	1,239	1/1/2021	8/14/2028
	Architectural Coating	1,173	3/1/2021	8/14/2028
	Fine Grading - Stabilization	40	5/26/2021	7/20/2021
Stage 2[3]	Grading - Direct	120	7/1/2018	12/14/2018
	Grading - Indirect	368	8/1/2018	12/27/2019
	Improvements - Sewers	160	2/1/2019	9/12/2019
	Improvements - Storm Drains	80	9/13/2019	1/2/2020
	Improvements - Water	100	1/3/2020	5/21/2020
	Paving	64	1/3/2020	4/1/2020
	Improvements - Streets	20	5/22/2020	6/18/2020
	Building Construction	1,021	6/19/2020	11/4/2024
	Architectural Coating	1,021	8/21/2020	11/20/2024
Stage 3	Grading - Direct (Phase 1)	80	1/1/2020	4/21/2020
	Grading - Indirect (Phase 1)	462	1/1/2020	10/7/2021
	Grading - Direct (Phase 2)	40	6/1/2023	7/26/2023
	Grading - Indirect (Phase 2)	392	6/1/2024	12/2/2025
	Improvements - Sewers	320	1/1/2021	3/24/2022
	Improvements - Storm Drains	140	3/26/2022	10/7/2022
	Improvements - Water	220	10/8/2022	8/13/2023
	Improvements - Streets	40	8/14/2023	10/6/2023
	Paving	768	10/8/2021	9/17/2024
	Building Construction	2,408	10/8/2021	12/31/2030
	Architectural Coating	2,321	2/8/2022	12/31/2030
Stage 4	Grading - Direct (Phase 1)	100	1/1/2023	5/19/2023
	Grading - Indirect (Phase 2)	783	1/1/2023	12/31/2025
	Improvements - Sewers (Phase 2)	240	1/1/2024	11/29/2024
	Improvements - Storm Drains (Phase 2)	120	12/3/2025	5/19/2026
	Improvements - Water (Phase 2)	160	5/20/2026	12/29/2026
	Improvements - Streets/Roads (Phase 2)	40	1/1/2027	2/25/2027
	Grading - Indirect (Phase 3)	567	1/1/2024	3/3/2026
	Improvements - Sewers (Phase 3)	140	1/1/2025	7/15/2025
	Improvements - Storm Drains (Phase 3)	60	7/16/2025	10/7/2025
	Improvements - Water (Phase 3)	80	10/8/2025	1/27/2026
	Improvements - Streets (Phase 3)	20	1/28/2026	2/24/2026
	Paving	257	1/1/2026	12/25/2026
	Building Construction	1,304	1/1/2026	12/31/2030
	Architectural Coating	1,218	5/1/2026	12/31/2030
Stage 5	Grading - Indirect	351	1/1/2018	5/6/2019
	Improvements - Sewers	220	7/1/2018	5/3/2019
	Improvements - Storm Drains	100	5/6/2019	9/20/2019
	Improvements - Water	160	9/23/2019	5/1/2020
	Improvements - Streets (Year 2020)	20	5/4/2020	5/29/2020
	Improvements - Streets (Year 2021)	20	5/4/2021	5/31/2021

Table 2-3. Construction Schedule Assumptions - Stages 1 through 6
RMDP/SCP
Los Angeles County, California

Stage	Construction Phase[1]	Number of Work Days[2]	Start Date	End Date[4]
Stage 5 *(Continued)*	Paving	129	6/1/2020	11/26/2020
	Building Construction	1,719	6/1/2020	12/31/2026
	Architectural Coating	1,631	10/1/2020	12/31/2026
Stage 6[3]	Grading - Direct	150	1/1/2020	7/28/2020
	Grading - Indirect	341	1/1/2020	4/21/2021
	Improvements - Sewers	160	7/1/2020	2/9/2021
	Improvements - Storm Drains	80	2/10/2021	6/1/2021
	Improvements - Water	100	6/2/2021	10/19/2021
	Improvements - Streets	20	10/20/2021	11/16/2021
	Paving	108	11/1/2020	3/31/2021
	Building Construction	2,000	11/1/2020	10/8/2030
	Architectural Coating	2,001	3/1/2021	10/8/2030

Notes:
[1] Construction phases and duration based on Project specific estimates.
[2] The construction work week was assumed to be 5 days per week.
[3] For Stages 1, 2, and 6, building construction and architectural coating phases are not expected to occur on every day during the shown durations.
[4] While some construction phases are conservatively identified to conclude in the second half of the 2030 calendar year in this table, the Project's absorption schedule anticipates that the Project will be fully constructed and occupied during the 2030 calendar year.

Table 2-4a. Construction Equipment Mix Assumptions - Stage 1
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Mass Grading - Utility Corridor	Crawler Tractors	171,216
	Excavators	655,632
	Off Highway Trucks	795,528
	Rubber Tired Loaders	417,600
	Water Trucks (Other Material Handling Equipment)	409,248
Mass Grading	Crawler Tractors	2,902,800
	Excavators	2,778,900
	Graders	2,867,400
	Off Highway Trucks	6,743,700
	Rubber Tired Dozers	6,336,600
	Scrapers	25,204,800
	Tractors/Loaders/Backhoes	858,450
	Water Trucks (Other Material Handling Equipment)	10,407,600
Trenching - Sewer	Cranes	1,231,248
	Excavators	855,336
	Other Material Handling Equipment	1,067,808
	Tractors/Loaders/Backhoes	528,456
	Water Trucks (Other Material Handling Equipment)	1,067,808
Trenching - Storm Drain	Cranes	614,720
	Excavators	427,040
	Other Material Handling Equipment	533,120
	Tractors/Loaders/Backhoes	263,840
	Water Trucks (Other Material Handling Equipment)	533,120
Trenching - Water	Cranes	676,192
	Excavators	469,744
	Other Material Handling Equipment	586,432
	Tractors/Loaders/Backhoes	290,224
	Water Trucks (Other Material Handling Equipment)	586,432
Building Construction	Cranes	1,960,098
	Forklifts	2,646,504
	Generator Sets	832,608
	Tractors/Loaders/Backhoes	2,523,843
	Welders	455,952
Architectural Coating	Air Compressors	548,964
Paving - Street	Graders	298,080
	Pavers	163,760
	Rollers	154,560
	Scrapers	655,040
	Water Trucks (Other Material Handling Equipment)	360,640
Paving	Pavers	789,608
	Paving Equipment	1,455,008
	Rollers	1,117,872
Fine Grading - Stabilization	Crawler Tractors	26,240
	Crushing/Processing Equip	27,200
	Excavators	50,240
	Graders	51,840
	Off Highway Trucks	243,840
	Rollers	26,880
	Rubber Tired Dozers	114,560
	Scrapers	455,680
	Tractors/Loaders/Backhoes	31,040
	Water Trucks (Other Material Handling Equipment)	62,720

Notes:

[1] Construction phases and equipment mix are consistent with the Final Joint EIR/EIS for the RMDP/SCP Project.

[2] Unit HP-Hours is calculated as the product of the number of work days, units of equipment, hours of equipment usage per day and equipment horsepower.

Abbreviations:

EIR - Environmental Impact Report
EIS - Environmental Impact Statement
HP - horsepower

Table 2-4b. Construction Equipment Mix Assumptions - Stage 2
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Grading - Direct	Crawler Tractors	108,240
	Crushing/Processing Equip	112,200
	Excavators	207,240
	Graders	213,840
	Water Trucks (Other Material Handling Equipment)	258,720
	Off-Highway Trucks	502,920
	Rollers	221,760
	Rubber Tired Dozers	472,560
	Rubber Tired Loaders	264,000
	Scrapers	2,819,520
Grading - Indirect	Crawler Tractors	1,327,744
	Excavators	1,271,072
	Graders	1,311,552
	Water Trucks (Other Material Handling Equipment)	4,760,448
	Off-Highway Trucks	3,084,576
	Rubber Tired Dozers	2,898,368
	Scrapers	12,969,792
Improvements - Sewers	Bore/Drill Rigs	360,800
	Cranes	397,760
	Excavators	552,640
	Rollers	147,840
	Rubber Tired Loaders	352,000
Improvements - Storm Drains	Cranes	198,880
	Excavators	138,160
	Graders	142,560
	Rollers	73,920
	Rubber Tired Loaders	176,000
Improvements - Water	Cranes	248,600
	Excavators	345,400
	Rollers	92,400
	Rubber Tired Loaders	220,000
Improvements - Streets	Graders	35,640
	Pavers	19,580
	Rollers	18,480
	Scrapers	78,320
Paving	Pavers	45,568
	Paving Equipment	83,968
	Rollers	64,512
Building Construction	Cranes	1,615,222
	Forklifts	2,180,856
	Generator Sets	686,112
	Tractors/Loaders/Backhoes	2,079,777
	Welders	375,728
Architectural Coating	Air Compressors	477,828

[1] Construction phases and equipment mix are consistent with the Final Joint EIR/EIS for the RMDP/SCP Project.

[2] Unit HP-Hours is calculated as the product of the number of work days, units of equipment, hours of equipment usage per day and equipment horsepower.

Abbreviations:
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
HP - horsepower

Table 2-4c. Construction Equipment Mix Assumptions - Stage 3
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Grading - Direct (Phase 1)	Crawler Tractors	393,600
	Crushing/Proc. Equipment	326,400
	Excavators	753,600
	Graders	777,600
	Water Trucks (Other Material Handling Equipment)	1,693,440
	Off-Highway Trucks	1,463,040
	Rollers	403,200
	Rubber Tired Dozers	1,718,400
	Rubber Tired Loaders	960,000
	Scrapers	4,101,120
Grading - Indirect (Phase 1)	Crawler Tractors	3,182,256
	Excavators	4,352,040
	Graders	4,490,640
	Water Trucks (Other Material Handling Equipment)	9,779,616
	Off-Highway Trucks	10,561,320
	Rubber Tired Dozers	9,923,760
	Scrapers	23,683,968
Grading - Direct (Phase 2)	Crawler Tractors	196,800
	Crushing/Proc. Equipment	163,200
	Excavators	376,800
	Graders	388,800
	Water Trucks (Other Material Handling Equipment)	846,720
	Off-Highway Trucks	731,520
	Rollers	201,600
	Rubber Tired Dozers	859,200
	Rubber Tired Loaders	480,000
	Scrapers	2,050,560
Grading - Indirect (Phase 2)	Crawler Tractors	2,700,096
	Excavators	3,692,640
	Graders	3,810,240
	Water Trucks (Other Material Handling Equipment)	8,297,856
	Off-Highway Trucks	8,961,120
	Rubber Tired Dozers	8,420,160
	Scrapers	20,095,488
Improvements - Sewers	Bore/Drill Rigs	3,164,160
	Cranes	3,471,360
	Excavators	2,411,520
	Rubber Tired Loaders	3,072,000
	Scrapers	5,468,160
Improvements - Storm Drains	Cranes	1,518,720
	Excavators	1,055,040
	Graders	1,088,640
	Rollers	564,480
	Rubber Tired Loaders	1,344,000
Improvements - Water	Cranes	2,386,560
	Excavators	1,657,920
	Rollers	887,040
	Rubber Tired Loaders	2,112,000
Improvements - Streets	Graders	311,040
	Pavers	170,880
	Rollers	161,280
	Scrapers	683,520
Paving	Pavers	546,816
	Paving Equipment	881,664
	Rollers	645,120
	Cement and Mortar Mixers	138,240
Building Construction	Cranes	8,163,120
	Forklifts	10,286,976
	Generator Sets	3,640,896
	Tractors/Loaders/Backhoes	9,810,192
	Welders	3,101,504
Architectural Coating	Air Compressors	2,172,456

Notes:

[1] Construction phases and equipment mix are consistent with the Final Joint EIR/EIS for the RMDP/SCP Project.

[2] Unit HP-Hours is calculated as the product of the number of work days, units of equipment, hours of equipment usage per day and equipment horsepower.

Abbreviations:

EIR - Environmental Impact Report
EIS - Environmental Impact Statement
HP - horsepower

Table 2-4d. Construction Equipment Mix Assumptions - Stage 4
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Grading - Direct (Phase 1)	Crawler Tractors	90,200
	Crushing/Proc. Equipment	93,500
	Excavators	172,700
	Graders	178,200
	Water Trucks (Other Material Handling Equipment)	215,600
	Off-Highway Trucks	419,100
	Rollers	184,800
	Rubber Tired Dozers	393,800
	Rubber Tired Loaders	220,000
	Scrapers	2,349,600
Grading - Indirect (Phase 3)	Crawler Tractors	1,022,868
	Excavators	979,209
	Graders	1,010,394
	Water Trucks (Other Material Handling Equipment)	3,667,356
	Off-Highway Trucks	2,376,297
	Rubber Tired Dozers	2,232,846
	Scrapers	11,101,860
Improvements - Sewers (Phase 3)	Bore/Drill Rigs	317,240
	Cranes	348,040
	Excavators	241,780
	Rollers	129,360
	Rubber Tired Loaders	308,000
Improvements - Storm Drains (Phase 3)	Cranes	149,160
	Excavators	207,240
	Graders	106,920
	Rollers	55,440
	Rubber Tired Loaders	132,000
Improvements - Water (Phase 3)	Cranes	198,880
	Excavators	276,320
	Rollers	73,920
	Rubber Tired Loaders	176,000
Improvements - Streets (Phase 3)	Graders	35,640
	Pavers	19,580
	Rollers	18,480
	Scrapers	78,320
Grading - Indirect (Phase 2)	Crawler Tractors	9,181,458
	Excavators	10,817,928
	Graders	11,162,448
	Water Trucks (Other Material Handling Equipment)	33,762,960
	Off-Highway Trucks	26,252,424
	Rubber Tired Dozers	24,667,632
	Scrapers	91,986,840
Improvements - Sewers (Phase 2)	Bore/Drill Rigs	543,840
	Cranes	596,640
	Excavators	828,960
	Rollers	221,760
	Rubber Tired Loaders	1,056,000
Improvements - Storm Drains (Phase 2)	Cranes	298,320
	Excavators	414,480
	Graders	213,840
	Rollers	110,880
	Rubber Tired Loaders	528,000

Table 2-4d. Construction Equipment Mix Assumptions - Stage 4
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Improvements - Water (Phase 2)	Cranes	397,760
	Excavators	552,640
	Rollers	147,840
	Rubber Tired Loaders	704,000
Improvements - Streets/Roads (Phase 2)	Graders	142,560
	Pavers	39,160
	Rollers	73,920
	Scrapers	156,640
Paving	Pavers	182,984
	Paving Equipment	337,184
	Rollers	259,056
Building Construction	Cranes	7,072,896
	Forklifts	9,284,480
	Generator Sets	3,067,008
	Tractors/Loaders/Backhoes	8,854,160
	Welders	1,679,552
Architectural Coating	Air Compressors	1,995,084

Notes:
[1] Construction phases and equipment mix are consistent with the Final Joint EIR/EIS for the RMDP/SCP Project.
[2] Unit HP-Hours is calculated as the product of the number of work days, units of equipment, hours of equipment usage per day and equipment horsepower.

Abbreviations:
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
HP - horsepower

Table 2-4e. Construction Equipment Mix Assumptions - Stage 5
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Grading - Indirect	Crawler Tractors	863,460
	Excavators	1,102,140
	Graders	1,137,240
	Water Trucks (Other Material Handling Equipment)	2,751,840
	Off-Highway Trucks	2,674,620
	Rubber Tired Dozers	2,513,160
	Scrapers	7,497,360
Improvements - Sewers	Bore/Drill Rigs	1,359,600
	Cranes	1,491,600
	Excavators	1,036,200
	Rollers	554,400
	Rubber Tired Loaders	1,320,000
Improvements - Storm Drains	Cranes	678,000
	Excavators	471,000
	Graders	486,000
	Rollers	252,000
	Rubber Tired Loaders	600,000
Improvements - Water	Cranes	1,084,800
	Excavators	753,600
	Rollers	403,200
	Rubber Tired Loaders	960,000
Improvements - Streets (Year 1)	Graders	97,200
	Pavers	53,400
	Rollers	50,400
	Scrapers	213,600
Improvements - Streets (Year 2)	Graders	97,200
	Pavers	53,400
	Rollers	50,400
	Scrapers	213,600
Paving	Pavers	91,848
	Paving Equipment	148,092
	Rollers	108,360
	Cement and Mortar Mixers	16,254
Building Construction	Cranes	3,107,952
	Forklifts	3,212,811
	Generator Sets	1,443,960
	Tractors/Loaders/Backhoes	2,667,888
	Welders	1,660,554
Architectural Coating	Air Compressors	1,017,744

Notes:

[1] Construction phases and equipment mix are consistent with the Final Joint EIR/EIS for the RMDP/SCP Project.

[2] Unit HP-Hours is calculated as the product of the number of work days, units of equipment, hours of equipment usage per day and equipment horsepower.

Abbreviations:

EIR - Environmental Impact Report
EIS - Environmental Impact Statement
HP - horsepower

Table 2-4f. Construction Equipment Mix Assumptions - Stage 6
RMDP/SCP
Los Angeles County, California

Construction Phase[1]	Equipment Type[1]	Unit HP-Hours[2]
Grading - Direct	Crawler Tractors	319,800
	Crushing/Proc. Equipment	165,750
	Excavators	306,150
	Graders	631,800
	Water Trucks (Other Material Handling Equipment)	764,400
	Off-Highway Trucks	742,950
	Rollers	327,600
	Rubber Tired Dozers	698,100
	Rubber Tired Loaders	390,000
	Scrapers	4,165,200
Grading - Indirect	Crawler Tractors	727,012
	Excavators	695,981
	Graders	718,146
	Water Trucks (Other Material Handling Equipment)	2,606,604
	Off-Highway Trucks	1,688,973
	Rubber Tired Dozers	1,587,014
	Scrapers	7,890,740
Improvements - Sewers	Bore/Drill Rigs	428,480
	Cranes	470,080
	Excavators	653,120
	Rollers	174,720
	Rubber Tired Loaders	416,000
Improvements - Storm Drains	Cranes	235,040
	Excavators	163,280
	Graders	168,480
	Rollers	87,360
	Rubber Tired Loaders	208,000
Improvements - Water	Cranes	293,800
	Excavators	204,100
	Rubber Tired Loaders	260,000
	Scrapers	462,800
Improvements - Streets	Graders	42,120
	Pavers	23,140
	Rollers	21,840
	Scrapers	92,560
Paving	Pavers	76,896
	Paving Equipment	106,272
	Rollers	108,864
Building Construction	Cranes	3,164,000
	Forklifts	4,272,000
	Generator Sets	1,344,000
	Tractors/Loaders/Backhoes	4,074,000
	Welders	736,000
Architectural Coating	Air Compressors	936,468

Notes:
[1] Construction phases and equipment mix are consistent with the Final Joint EIR/EIS for the RMDP/SCP Project.
[2] Unit HP-Hours is calculated as the product of the number of work days, units of equipment, hours of equipment usage per day and equipment horsepower.

Abbreviations:
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
HP - horsepower

Table 2-5. Summary of Construction Worker, Vendor and Hauling Trips
RMDP/SCP
Los Angeles County, California

Construction Stage	Construction Phase	Year	Worker Trips Per Day[1]	Vendor Trips Per Day[1]	Total Hauling Trips[1,2]
Stage 1	Mass Grading - Utility Corridor	2018-2019	15	0	16,704
	Mass Grading	2018-2021	68	0	56,640
	Trenching - Sewer	2018-2021	13	0	0
	Trenching - Storm Drain	2019-2020	13	0	0
	Trenching - Water	2019-2020	13	0	0
	Building Construction [3]	2021-2028	--	--	0
	Architectural Coating [3]	2021-2028	--	--	0
	Paving - Street	2020-2021	13	0	0
	Paving	2020-2028	13	0	0
	Fine Grading - Stabilization	2021	35	0	0
Stage 2	Grading - Direct	2018	40	0	0
	Grading - Indirect	2018-2019	68	0	23,552
	Improvements - Sewers	2019	15	0	0
	Improvements - Storm Drains	2019-2020	13	0	0
	Improvements - Water	2020	13	0	0
	Paving	2020	13	0	0
	Improvements - Streets	2020	10	0	0
	Building Construction[3]	2020-2024	--	--	0
	Architectural Coating[3]	2020-2024	--	--	0
Stage 3	Grading - Direct (Phase 1)	2020	148	0	0
	Grading - Indirect (Phase 1)	2020-2021	120	0	29,568
	Improvements - Sewers	2021-2022	50	0	0
	Building Construction[3]	2021-2030	--	--	0
	Paving	2021-2024	23	0	0
	Architectural Coating[3]	2022-2030	--	--	0
	Improvements - Storm Drains	2022	50	0	0
	Improvements - Water	2022-2023	40	0	0
	Grading - Direct (Phase 2)	2023	148	0	0
	Improvements - Streets	2023	40	0	0
	Grading - Indirect (Phase 2)	2024-2025	120	0	25,088
Stage 4	Grading - Direct (Phase 1)	2023	40	0	0
	Grading - Indirect (Phase 2)	2023-2025	238	0	50,112
	Grading - Indirect (Phase 3)	2024-2026	35	0	36,288
	Improvements - Sewers (Phase 2)	2024	18	0	0
	Improvements - Sewers (Phase 3)	2025	13	0	0
	Improvements - Storm Drains (Phase 3)	2025	15	0	0
	Improvements - Water (Phase 3)	2025-2026	13	0	0
	Improvements - Storm Drains (Phase 2)	2025-2026	18	0	0
	Building Construction[3]	2026-2030	--	--	0
	Paving	2026	13	0	0
	Improvements - Streets (Phase 3)	2026	10	0	0
	Architectural Coating[3]	2026-2030	--	--	0
	Improvements - Water (Phase 2)	2026	15	0	0
	Improvements - Streets/Roads (Phase 2)	2027	15	0	0
Stage 5	Grading - Indirect	2018-2019	53	0	22,464
	Improvements - Sewers	2018-2019	38	0	0
	Improvements - Storm Drains	2019	38	0	0
	Improvements - Water	2019-2020	30	0	0
	Improvements - Streets	2020-2021	30	0	0
	Building Construction[3]	2020-2026	--	--	0
	Paving	2020	18	0	0
	Architectural Coating[3]	2020-2026	--	--	0

Table 2-5. Summary of Construction Worker, Vendor and Hauling Trips
RMDP/SCP
Los Angeles County, California

Construction Stage	Construction Phase	Year	Worker Trips Per Day[1]	Vendor Trips Per Day[1]	Total Hauling Trips[1,2]
Stage 6	Grading - Direct	2020	48	0	0
	Grading - Indirect	2020-2021	35	0	21,824
	Improvements - Sewers	2020-2021	15	0	0
	Building Construction[3]	2020-2030	--	--	0
	Paving	2020-2021	15	0	0
	Improvements - Storm Drains	2021	13	0	0
	Architectural Coating[3]	2021-2030	--	--	0
	Improvements - Water	2021	10	0	0
	Improvements - Streets	2021	10	0	0

Notes:

[1] Worker and vendor trips are presented as one-way trips. One round trip consists of two one-way trips, e.g. for a worker/vendor to come to the Site and leave the Site. Hauling trips are total trips for the phase. The one-way trip lengths for worker, vendor, and hauling trips are 19.8, 7.9, and 20 miles, respectively, based on CalEEMod® defaults.

[2] The Project's estimate of hauling trips conservatively assumes that there will be 64 trips per day for hauling vegetation waste during the grading phase. There will be no off-site soil hauling truck trips for the Project, as the on-site development is based on a balanced cut-and-fill design.

[3] CalEEMod® default trip rates for construction-related activities do not account for phased construction activities. Therefore, Table 2-6 presents an adjustment calculation for the CalEEMod® defaults in order to more accurately represent the Project's worker and vendor trips.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

Table 2-6. Building Construction and Architectural Coating Worker and Vendor Trips Adjustment
RMDP/SCP
Los Angeles County, California

Category	Buildout Year													
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
Land Use Data for Building Construction[1]														
Residential [Dwelling Units]			664	3,204	4,348	2,645	1,866	1,272	1,257	2,717	2,116	754	397	21,242
Non Residential [1,000 sq ft]			49	909	1,159	1,364	1,823	1,164	570	1,049	1,225	519	148	9,979
Land Use Data for Architectural Coating[1]														
Residential [Dwelling Units]			664	1,558	2,996	4,162	2,575	1,441	1,365	2,885	2,291	838	466	21,242
Non Residential [1,000 sq ft]			0	756	789	1,937	1,823	1,164	570	1,049	1,225	519	148	9,979
Maximum Daily One-Way Trips														
Stage 1 (Non BC, AC Phase Worker Trips)	96	122	133	142	13	13	13	13	13	13	13	0	0	584
Stage 2 (Non BC, AC Phase Worker Trips)	108	96	49	0	0	0	0	0	0	0	0	0	0	253
Stage 3 (Non BC, AC Phase Worker Trips)	0	0	268	193	163	251	143	120	0	0	0	0	0	1,138
Stage 4 (Non BC, AC Phase Worker Trips)	0	0	0	0	0	278	291	332	104	15	0	0	0	1,020
Stage 5 (Non BC, AC Phase Worker Trips)	91	159	78	30	0	0	0	0	0	0	0	0	0	358
Stage 6 (Non BC, AC Phase Worker Trips)	0	0	113	98	0	0	0	0	0	0	0	0	0	211
RMDP/SCP Building Construction														
Worker Trips			**401**	**2,214**	**2,973**	**2,085**	**1,833**	**1,216**	**958**	**1,994**	**1,724**	**649**	**289**	**16,338**
Residential			380	1,832	2,486	1,512	1,067	727	719	1,554	1,210	431	227	
Non Residential			21	382	487	573	766	489	239	441	514	218	62	
Vendor Trips			**79**	**491**	**655**	**506**	**498**	**327**	**228**	**462**	**427**	**166**	**67**	**3,906**
Residential			71	343	465	283	199	136	134	290	226	81	42	
Non Residential			8	149	190	224	299	191	93	172	201	85	24	
RMDP/SCP Architectural Coating														
Worker Trips			**76**	**242**	**409**	**639**	**448**	**263**	**204**	**418**	**365**	**139**	**66**	**3,268**
Residential			76	178	343	476	294	165	156	330	262	96	53	
Non Residential			0	63	66	163	153	98	48	88	103	44	12	
Vendor Trips			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Residential			0	0	0	0	0	0	0	0	0	0	0	
Non Residential			0	0	0	0	0	0	0	0	0	0	0	
Hauling Trips[2]	192	256	256	192	0	64	192	192	64	0	0	0	0	1,408
Total Trips	**487**	**633**	**1,453**	**3,602**	**4,213**	**3,837**	**3,418**	**2,463**	**1,571**	**2,903**	**2,529**	**954**	**422**	**28,483**

Table 2-6. Building Construction and Architectural Coating Worker and Vendor Trips Adjustment
RMDP/SCP
Los Angeles County, California

Derivation of Adjustment Factor[3]	
Total Emissions from Building Construction and Architectural Coating Worker/Vendor Daily Trips ($MTCO_2e$)[4]	**39,969**
Building Construction and Architectural Coating Worker/Vendor Trip Emissions as Estimated by CalEEMod ($MTCO_2e$)	**293,515**
% Actual Emissions Relative to CalEEMod-Estimated Emissions[5]	**13.6%**

Notes:
[1] Total land use was distributed by year based on the building construction and architectural coating schedule.
[2] This analysis assumed 64 daily vegetation hauling trips for the grading phases.
[3] For purposes of this Project, CalEEMod®'s default parameters result in an over-estimation of the number of vendor and worker trips during the building construction and architectural coating phases due to the model's assumption that all buildings are constructed simultaneously during every year of construction activity. This Project proposes to phase development, such that construction-related activities will occur on various portions of the total development area from year-to-year. Therefore, this table calculates an adjustment factor that is used to correct CalEEMod®'s number of vendor and worker trips based on the estimated number of residential dwelling units and non-residential square footage being built and painted in each calendar year.
[4] The estimated emissions generated from worker and vendor trips during the Project's building construction and architectural coating phases are based on a Project-specific construction schedule along with CalEEMod ® default trip lengths, trip rate factors, and fleet mix. Emission factors used are based on EMFAC2011, running and starting emissions for CO_2 and CH_4 only
[5] The adjustment factor is calculated by dividing the corrected emissions with CalEEMod®'s overestimated results. This percentage is applied to the emissions from worker and vendor trips during the building construction and architectural coating phases for each construction stage.

Abbreviations:
AC - architectural coating
BC - building construction
CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
EMFAC - California Air Resources Board Emission Factor Model
MT - metric tonnes
sqft - square feet

Table 2-7. Annual GHG Construction Emissions from Off-Road Equipment - Stages 1 through 6
RMDP/SCP
Los Angeles County, California

Stage	Construction Phase	CO_2e Emissions (MT)[1, 2, 3]	
		Offroad Equipment	Total
1	Grading	12,793	**17,014**
	Trenching	1,688	
	Paving	944	
	Building Construction	1,439	
	Architectural Coating	150	
2	Grading	7,015	**9,010**
	Trenching	644	
	Paving	35	
	Building Construction	1,185	
	Architectural Coating	131	
3	Grading	28,770	**41,835**
	Trenching	5,791	
	Paving	422	
	Building Construction	6,258	
	Architectural Coating	593	
4	Grading	48,689	**56,410**
	Trenching	1,746	
	Paving	141	
	Building Construction	5,288	
	Architectural Coating	545	
5	Grading	3,943	**8,741**
	Trenching	2,208	
	Paving	69	
	Building Construction	2,243	
	Architectural Coating	278	
6	Grading	5,143	**8,604**
	Trenching	799	
	Paving	53	
	Building Construction	2,352	
	Architectural Coating	256	
		Grand Total	**141,612**

Notes:

[1] Emissions estimated using CalEEMod® version 2013.2.2.

[2] CO_2e includes CO_2, CH_4, and N_2O emissions, weighted by their respective Fourth Assessment Report (AR4) global warming potential (GWP). Based on Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report released in 2007, the GWPs for CH_4 and N_2O were updated from 21 to 25 and from 310 to 298, respectively. Available at: https://www.ipcc.ch/publications_and_data/ ar4/wg1/en/ch2s2-10-2.html, Table 2.14. Accessed: September 2016.

[3] This analysis assumes that the off-road, diesel-powered construction equipment greater than 50 horsepower used to grade the Project site shall meet the USEPA's Tier 3 standards at a minimum; construction equipment shall achieve the Tier 4 standards, where feasible.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
GHG - greenhouse gases
MT - metric tonnes
N_2O - nitrous oxide
USEPA - United States Environmental Protection Agency

Table 2-8. Annual GHG Construction Emissions from On-Road Vehicles - Stages 1 through 6
RMDP/SCP
Los Angeles County, California

Stage	Construction Phase	CO_2e Emissions (MT)[1,2]			
		Worker[3]	Vendor[3]	Hauling	Total
1	Grading	415	0	2,372	**8,418**
	Trenching	114	0	0	
	Paving	101	0	0	
	Building Construction	3,335	1,451	0	
	Architectural Coating	631	0	0	
2	Grading	194	0	766	**2,735**
	Trenching	31	0	0	
	Paving	5	0	0	
	Building Construction	1,052	477	0	
	Architectural Coating	210	0	0	
3	Grading	716	0	1,723	**16,152**
	Trenching	199	0	0	
	Paving	104	0	0	
	Building Construction	8,362	3,441	0	
	Architectural Coating	1,608	0	0	
4	Grading	1,216	0	2,714	**15,757**
	Trenching	77	0	0	
	Paving	19	0	0	
	Building Construction	6,668	3,818	0	
	Architectural Coating	1,244	0	0	
5	Grading	122	0	738	**3,662**
	Trenching	116	0	0	
	Paving	14	0	0	
	Building Construction	1,709	639	0	
	Architectural Coating	324	0	0	
6	Grading	117	0	690	**4,782**
	Trenching	28	0	0	
	Paving	9	0	0	
	Building Construction	1,999	1,539	0	
	Architectural Coating	400	0	0	
				Grand Total	**51,507**

Notes:

[1] Emissions estimated using CalEEMod® version 2013.2.2.

[2] CO_2e includes CO_2, CH_4, and N_2O emissions, weighted by their respective Fourth Assessment Report (AR4) global warming potential (GWP). Based on Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report released in 2007, the GWPs for CH^4 and N_2O were updated from 21 to 25 and from 310 to 298, respectively. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html, Table 2.14. Accessed: September 2016.

[3] Emissions associated with worker and vendor trips for building construction and architectural coating were scaled by the adjustment factor to account for the inaccuracy in how CalEEMod® evaluates phased construction.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
GHG - greenhouse gases
MT - metric tonnes
N_2O - nitrous oxide

Table 2-9. Summary of GHG Construction Emissions - Stages 1 through 6
RMDP/SCP
Los Angeles County, California

Stage	Year	CO_2e Emissions (MT)[1]		
		Off-Road	On-Road	Total
1	2018	3,487	1,045	4,532
	2019	4,465	801	5,266
	2020	4,320	692	5,013
	2021	2,827	1,089	3,916
	2022	272	699	970
	2023	272	690	961
	2024	272	686	958
	2025	272	680	952
	2026	272	674	946
	2027	272	669	941
	2028	284	694	978
	Total	**17,014**	**8,418**	**25,432**
			30-yr amortized[3]	**848**
2	2018	2,909	311	3,220
	2019	4,564	670	5,234
	2020	396	249	645
	2021	285	382	667
	2022	285	377	662
	2023	285	372	657
	2024	286	372	659
	Total	**9,010**	**2,735**	**11,745**
			30-yr amortized[3]	**391**
3	2020	10,233	796	11,029
	2021	8,812	949	9,761
	2022	2,751	1,593	4,345
	2023	3,290	1,600	4,890
	2024	5,268	1,924	7,192
	2025	7,722	2,116	9,837
	2026	737	1,455	2,192
	2027	737	1,444	2,181
	2028	734	1,429	2,163
	2029	737	1,426	2,163
	2030	816	1,419	2,235
	Total	**41,835**	**16,152**	**57,987**
			30-yr amortized[3]	**1,933**
4	2023	15,236	907	16,143
	2024	17,162	1,494	18,656
	2025	17,004	1,480	18,484
	2026	2,200	2,448	4,648
	2027	1,234	2,382	3,616
	2028	1,145	2,355	3,500
	2029	1,149	2,351	3,501
	2030	1,279	2,341	3,620
	Total	**56,410**	**15,757**	**72,166**
			30-yr amortized[3]	**2,406**

Table 2-9. Summary of GHG Construction Emissions - Stages 1 through 6
RMDP/SCP
Los Angeles County, California

Stage	Year	CO_2e Emissions (MT)[1]		
		Off-Road	On-Road	Total
5	2018	3,587	676	4,263
	2019	2,101	276	2,378
	2020	656	266	922
	2021	473	422	894
	2022	384	411	795
	2023	384	406	789
	2024	387	407	793
	2025	385	401	786
	2026	385	398	783
	Total	**8,741**	**3,662**	**12,403**
			30-yr amortized[3]	**413**
6	2020	4,763	727	5,491
	2021	1,535	596	2,131
	2022	252	394	646
	2023	252	390	642
	2024	252	388	640
	2025	252	385	637
	2026	252	382	634
	2027	252	380	632
	2028	252	378	630
	2029	252	376	628
	2030	289	385	674
	Total	**8,604**	**4,782**	**13,386**
			30-yr amortized[3]	**446**
			Grand Total	**193,119**
			30-yr amortized[3]	**6,437**

Notes:

[1] Emissions estimated using CalEEMod® version 2013.2.2. See Tables 2-7 and 2-8 for detailed emission inventories of the Off-Road Equipment, and On-Road Vehicles categories, respectively.

[2] CO_2e includes CO_2, CH_4, and N_2O emissions, weighted by their respective Fourth Assessment Report (AR4) global warming potential (GWP). Based on Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report released in 2007, the GWPs for CH_4 and N_2O were updated from 21 to 25 and from 310 to 298, respectively. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html,
Table 2.14. Accessed: September 2016.

[3] This approach to one-time construction and vegetation change GHG emissions is based on the GHG Threshold Working Group Meeting #13 Minutes from August 26, 2009. Available at: http://sfprod.aqmd.gov/ docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf?sfvrsn=2. Accessed: September 2016.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
N_2O - nitrous oxide
yr - year

Table 2-10a. Number of Net New Trees
RMDP/SCP
Los Angeles County, California

Area	Tree Type	Number of Net New Trees[1]
ES	Miscellaneous	2,500
NRSP	Miscellaneous	35,000
VCC	Miscellaneous	5,000
Total		**42,500**

Notes:
[1] Number of new trees was based on Project specific estimates.

Abbreviations:
ES - Entrada South
NRSP - Newhall Ranch Specific Plan
VCC - Valencia Commerce Center

Table 2-10b. Vegetation Change Evaluation
RMDP/SCP
Los Angeles County, California

Area	Type of Vegetation Change	Land Use Change[1]		
		Initial (acres)	Final (acres)	CO_2 emissions[2] (MT)
ES	Cropland	44.0	0.0	273
	Grassland	5.8	0.0	25
	Trees	1.7	0.0	189
	Scrub	149.3	0.0	2135
	Total vegetation change	**200.8**	**0**	**2621**
NRSP	Agricultural, Developed, or Disturbed	2,036.3	138.0	11,769
	Bog and Marsh	8.8	0.0	0
	Broad Leaf Upland Trees	107.0	0.0	11,877
	Grass and Herbs	950.5	0.0	4,097
	Riparian and Bottomland	82.6	0.0	9,169
	Scrub and Chaparral	1,903.4	0.0	27,219
	Total vegetation change	**5088.6**	**138**	**64,130**
VCC	Cropland	86.0	0.0	533
	Grassland	63.3	0.0	273
	Trees	18.5	0.0	2,054
	Scrub	37.6	0.0	538
	Wetlands	0.6	0.0	0
	Total vegetation change	**206.0**	**0**	**3,397**
Total		**5,495**	**138**	**70,149**
CO_2e sequestered from Net New Trees (MT)[4]				**-30,090**
Total CO_2e emissions released (MT)				**40,059**
30-yr amortized (MT/yr)				**1,335**

Notes:

[1] Land use change was based on the California Department of Fish & Wildlife, Draft Joint EIS/EIR for the RMDP and SCP Project (April 2009; SCH No. 2000011025), Volume XVI – Appendix 8.0 [ENVIRON International Corporation, Climate Change Technical Report (February 2009)]. Table 4-2-B.

[2] Emissions were estimated using CalEEMod® version 2013.2.2.

[3] Two sets of tree land use change were modeled, based on the land designations of 'Broad Leaf Upland' and 'Riparian and Bottomland' in the table cited in Note 1.

[4] Total CO_2e sequestered over 20 year active growth period of new trees, as recommended by the Intergovernmental Panel on Climate Change (IPCC). The negative value indicates CO_2e emissions sequestration, as opposed to emissions. See Table 3-10a for number of net new trees.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
ES - Entrada South
NRSP - Newhall Ranch Specific Plan
MT - metric tonnes
VCC - Valencia Commerce Center
yr - year

Table 2-11. GHG Emissions from Area Sources
RMDP/SCP
Los Angeles County, California

Area	Area Sources[1]	Condition[2]
		Unmitigated Project
ES	Landscaping	30
NRSP	Landscaping	337
VCC	Landscaping	0.09
Total CO_2e Emissions (MT)		**367**

Notes:

[1] Categories that CalEEMod® classifies as "Area Sources." CalEEMod® does not associate any CO_2e emissions with architectural coatings or consumer products. Any emissions from hearths are assumed to be captured in the ConSol residential building energy modeling.

[2] Emissions were estimated using CalEEMod® version 2013.2.2.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
ES - Entrada South
GHG - greenhouse gases
NRSP - Newhall Ranch Specific Plan
MT - metric tonnes
VCC - Valencia Commerce Center

References:

ConSol. 2016. *Newhall Land & Farming Company, Residential and Commercial Building Analysis.*

Table 2-12. Utility GHG Intensity Factor Associated with Renewable Portfolio Standard
RMDP/SCP
Los Angeles County, California

Energy Delivered[1] [MWh]				
	2006	**2007**	**Average**	**Units**
Total Energy Delivery[1]	82,776,309	83,958,770	--	MWh
from renewables[2]	12,670,583	12,476,219		MWh
from non-renewables	70,105,726	71,482,551	--	MWh
% of Total Energy From Renewables[2]	15%	15%	--	
% of Total Energy From Non-Renewables	85%	85%	--	
Total CO_2 Emissions[1]	24,077,133	24,026,108	--	MT CO_2
CO_2 Intensity Factor per Total Energy Delivered[1]	641.26	630.89	636.07	lbs CO_2/MWh delivered
CO_2 Intensity Factor per Total Non-Renewable Energy[3]	757.16	741.00	--	lbs CO_2/MWh delivered
Estimated Intensity Factors for Total Energy Delivered[4]				
2010 RPS (20%)	**605.7**	**592.8**	**599.26**	lbs CO_2/MWh delivered
2020 RPS (33%)	**507.3**	**496.5**	**501.88**	lbs CO_2/MWh delivered
2030 RPS (50%)	**378.6**	**370.5**	**374.54**	lbs CO_2/MWh delivered

Notes:

[1] Total energy delivery and total CO_2 emissions are provided in SCE Power/Utility Protocol (PUP) Reports. Available at: http://www.climateregistry.org/tools/carrot.html. Accessed: September 2016.

[2] Renewable energy delivered is the sum of biogenic, geothermal and other renewable generations in PUP reports.

[3] The emissions metric presented here is calculated based on the total CO_2 emissions divided by the energy delivered from non-renewable sources.

[4] The intensity factors for default RPS assumption are estimated by multiplying the percentage of energy delivered from non-renewable energy by the CO_2 emissions per total non-renewable energy metric calculated above. Three emission factors are presented here: the 20% RPS for 2010, the 33% RPS for 2020, and 50% RPS for 2030. The estimate provided here and the PUP reports issued by SCE assume that renewable energy sources do not result in any CO_2 emissions.

Abbreviations:

CO_2 - carbon dioxide
GHG - greenhouse gases
lbs - pounds
MT - metric tonnes
MWh - megawatt-hour
RPS - Renewable Portfolio Standards
SCE - Southern California Edison

Table 2-13a. Residential Electricity and Natural Gas Usage Rates
RMDP/SCP
Los Angeles County, California

Unmitigated Condition: Title 24 - 2016 Standards								
CalEEMod® Land Use Subtype	**ConSol Land Use Subtype[1]**	**Title 24 Electricity[2]**	**Non-Title 24 Electricity[3]**	**Lighting Electricity[4]**	**Title 24 Natural Gas[5]**	**Non-Title 24 Natural Gas[6]**	**Total Electricity[7]**	**Total Natural Gas[7]**
		kWh/unit/yr	**kWh/unit/yr**	**kWh/unit/yr**	**kBTU/unit/yr**	**kBTU/unit/yr**	**kWh/unit/yr**	**kBTU/unit/yr**
Condo/Townhouse	Multifamily	499	2,855	308	8,700	1,200	3,662	9,900
Single Family Housing	Single Family	879	4,244	767	20,500	1,500	5,890	22,000

Notes:
[1] CalEEMod® land use types were mapped to the most representative land use types from ConSol based on the similarity of emission factors in CalEEMod®.
[2] Title 24 electricity is the "regulated loads" kWh shown in the ConSol Report (see Appendix C).
[3] Non-Title 24 electricity is the sum of "Appliance & Cooking kWh" and "Plug Load kWh" shown in ConSol Report (see Appendix C).
[4] Lighting electricity is the sum of "Interior Lighting kWh" and "Exterior Lighting kWh" shown in ConSol Report (see Appendix C). Sum may differ from Appendix C due to rounding.
[5] Title 24 natural gas is the "regulated loads" Therms shown in Appendix C.
[6] Non-Title 24 natural gas is the "Appliance & Cooking Therms" shown in ConSol Report (see Appendix C).
[7] Total electricity and total natural gas are not used in CalEEMod® inputs.

Abbreviations:
CalEEMod® - CALifornia Emissions Estimator MODel
CEC - California Energy Commission
kBTU - 1,000 British thermal units
kWh - kilowatt-hour
yr - year

References:
CEC. 2016. 2016 Building Energy Efficiency Standards Approved Computer Compliance Programs. Available at: http://www.energy.ca.gov/title24/2016standards/2016_computer_prog_list.html. Accessed: September 2016.
ConSol. 2016. *Newhall Land & Farming Company, Residential and Commercial Building Analysis.*

Table 2-13b. Non-Residential Electricity and Natural Gas Usage Rates
RMDP/SCP
Los Angeles County, California

Non-residential Electricity Usage Rates						
CalEEMod® Land Use Subtype	ConSol Land Use Prototype[1]	2008 Title 24 Electricity[2]	Total Lighting and Non-2008 Title 24 Electricity	Total 2008 Electricity	Reduction to Total 2016 Electricity[3]	Total 2016 Electricity
		kWh/unit/yr	kWh/unit/yr	kWh/unit/yr	%	kWh/unit/yr
Elementary School	Office	2.13	4.57	6.70	7.7%	6.18
General Light Industry	Industrial	2.75	9.30	12.05	21.5%	9.46
General Office Building	Office	5.62	8.91	14.53	7.7%	13.41
Health Club	Industrial	2.75	9.30	12.05	21.5%	9.46
High School	Office	2.13	4.57	6.70	7.7%	6.18
Hotel	Office	3.12	5.38	8.50	7.7%	7.84
Industrial Park	Industrial	5.62	8.91	14.53	21.5%	11.41
Library	Industrial	2.75	9.30	12.05	21.5%	9.46
Office Park	Office	6.86	9.04	15.90	7.7%	14.67
Regional Shopping Center	Retail	4.90	10.27	15.17	21.6%	11.89

Non-residential Natural Gas Usage Rates						
CalEEMod® Land Use Subtype	ConSol Land Use Prototype[2]	2008 Title 24 Natural Gas[2]	Total Lighting and Non-2008 Title 24 Natural Gas	Total 2008 Natural Gas	Reduction in Total 2016 Natural Gas[3]	Total 2016 Natural Gas
		kBTU/unit/yr	kBTU/unit/yr	kBTU/unit/yr	%	kBTU/unit/yr
Elementary School	Office	9.81	1.08	10.89	13.8%	9.39
General Light Industry	Industrial	14.36	4.45	18.81	-2.4%	19.27
General Office Building	Office	10.54	0.39	10.93	13.8%	9.43
Health Club	Industrial	14.36	4.45	18.81	-2.4%	19.27
High School	Office	9.81	1.08	10.89	13.8%	9.39
Hotel	Office	20.96	4.06	25.02	13.8%	21.58
Industrial Park	Industrial	10.54	0.39	10.93	-2.4%	11.20
Library	Industrial	14.36	4.45	18.81	-2.4%	19.27
Office Park	Office	10.10	0.19	10.29	13.8%	8.87
Regional Shopping Center	Retail	1.21	0.49	1.70	22.3%	1.32

Notes:

[1] CalEEMod® land use types were mapped to the most representative land use types from ConSol based on the similarity of emission factors in CalEEMod®.

[2] Default energy use rates from CalEEMod® Appendix D, Table 8.1 were used for 2008 Title 24 electricity and natural gas. The reduction from 2008 Title 24 to 2016 Title 24 is based on ConSol building energy modeling as described in Appendix C.

[3] The majority of energy consumption in non-residential buildings is regulated under the 2016 California Building Code. Rather than split electricity and gas use into "Title 24", "Lighting", and "Non-Title 24", ConSol modeled the change in total electricity use and total natural gas use for non-residential buildings. These changes were applied to the total default 2008 energy use factors from CalEEMod® (e.g. the sum of the "Title 24", "Lighting", and "Non-Title 24" factors). A negative sign (-) indicates an increase in gas use.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CEC - California Energy Commission
kBTU -1,000 British thermal units
kWh - kilowatt-hour
yr - year

References:

CEC. 2016. 2016 Building Energy Efficiency Standards Approved Computer Compliance Programs. Available at: http://www.energy.ca.gov/title24/2016standards/2016_computer_prog_list.html. Accessed: September 2016.

ConSol. 2016. *Newhall Land & Farming Company Residential and Commercial Building Analysis.*

Table 2-14a. GHG Emissions Associated with Swimming Pools
RMDP/SCP
Los Angeles County, California

I. OAKLAND STUDY TO CALCULATE EMISSIONS FROM SWIMMING POOLS

Facility Name[1]	Pool Volume[1]	Number of Heaters[1]	Heater Rating[1]	Operation Schedule[1]		Annual Natural Gas Usage[2]	Average Annual Natural Gas Usage[3]	Adjusted Average Annual Natural Gas Usage[3]	Annual Electricity Usage[4]	Average Annual Electricity Usage[5]
	(gal)		(BTU/hr)	(hrs/day)	(days/yr)	(MMBTU/yr)	(MMBTU/gal/yr)	(MMBTU/gal/yr)	(kWh/yr)	(kWh/gal/yr)
Fremont Pool	215,000	4	350,000	12	243	4,082	0.023	**0.014**	106,872	**0.496**
DeFremery Pool	226,659	1	1,738,800	10	243	4,225			105,120	
Live Oak Pool	260,000	4	350,000	12	365	6,132			95,309	
Lyons Pool	240,000	4	350,000	12	365	6,132			110,376	
Temescal Pool	227,605	4	350,000	12	365	6,132			162,060	

II. ENERGY USE FACTORS AND EMISSION FACTORS TO CALCULATE EMISSIONS FROM NEWHALL LAND SWIMMING POOLS[6]

Energy Use Factor		Emission Factors[7,8,9] (lb CO_2e/unit)			Emission Factors (lb CO_2e/gal/yr)	
		2030 Unmitigated	2030 Mitigated	(unit)	2030 Unmitigated	2030 Mitigated
0.496	(kWh/gal/yr)	0.377	0.377	(kWh)	1.82	0.19
0.014	(MMBTU/gal/yr)	118.3	--	(MMBTU)		

III. EMISSIONS FROM NEWHALL LAND SWIMMING POOLS

Villages	Pool Volume[10]		Emissions (MT CO_2e/yr)		Emission Reductions (MT CO_2e/yr)
	(cubic feet)	(gal)	2030 Unmitigated	2030 Mitigated	2030 Unmitigated - Mitigated
ES - 2 Pools	196,850	1,472,543	1,215	125	1,091
NRSP - 39 Pools	3,838,583	28,714,595	23,702	2,436	21,266
Total	4,035,433	30,187,139	24,917	2,561	22,356

Notes:

[1] To estimate the baseline electricity and natural gas energy usage factors for Newhall Land pools, Ramboll Environ calculated the energy consumption of filter pumps and water heaters of 5 pools in Oakland, California and scaled them to present energy consumption per year per volume of the pool. Oakland pools data including pool volume, number of heaters, heater rating, operation schedule, and annual electricity usage are provided in the City of Oakland Energy Efficient Commercial Pool Program Preliminary Facility Reports: City of Oakland / Oakland Unified School District. October 2006. Energy Efficient Commercial Pool Program; Preliminary Facility Reports for DeFremery Pool, Fremont Pool, Live Oak Pool, Lyons Pool, and Temescal Pool.

[2] Annual Natural Gas Usage calculated by multiplying the following factors: (Number of hrs/day) x (Number of days/yr) x (Number of Heaters) x (Heater Rating). Each of these factors were taken from the City of Oakland. Preliminary Facility Reports for DeFremery Pool, Fremont Pool, Live Oak Pool, Lyons Pool, and Temescal Pool.

[3] Average Annual Natural Gas Usage calculated from the Annual Natural Gas Usage of all 5 pools divided by the total Pool Volume of all 5 pools, then was adjusted to account for the higher average ambient temperature in Southern California compared to Oakland (i.e., an average temperature of 55.5 F for Oakland and 63.3 F for Santa Clarita) and also adjusted to account for savings from newer energy efficient heater standards (i.e., Ramboll Environ assumed that the Oakland pools used 78% efficient heaters, which is the minimum efficiency legally required (see 10 CFR Part 431). According to the U.S. Department of Energy, newer pools are likely to use heaters with 89-95% efficiency (see http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13170). Ramboll Environ conservatively assumed 90% efficiency for Santa Clarita pool heaters, resulting in a 12% savings over the Oakland pools).

[4] Annual Electricity Usage for each pool is shown as reported in the City of Oakland Preliminary Facility Reports for DeFremery Pool, Fremont Pool, Live Oak Pool, Lyons Pool, and Temescal Pool.

[5] Average Annual Electricity Usage calculated from the Annual Electricity Usage of all 5 pools divided by the total Pool Volume of all 5 pools.

[6] Similar to the Oakland pools, the Newhall land swimming pools are assumed to use electricity for filters and pumps, and natural gas for water heating.

[7] Only CO_2 emissions are estimated and are assumed to be equivalent to total GHG emissions. For this calculation, the contributions from methane (CH_4) and nitrous oxide (N_2O) are considered negligible when compared to total GHG for emissions associated with electricity generation and natural gas combustion. The emission factors in the California Climate Action Registry General Reporting Protocol show that CH_4 and N_2O emissions (in CO_2e) are less than 1% of CO_2 emissions for these processes.

[8] The emission factor for electricity was obtained from the California Climate Action Registry Database. The electricity generation emission factor was adjusted to reflect 50% RPS for the 2030 Unmitigated Project. The emission factor for natural gas is obtained from CalEEMod® appendix D Table 8.2.

[9] It is assumed that the solar cover replaces all natural gas heating. Thus the estimated mitigated emissions represent those for the electric pumping only.

[10] Project specific estimate for swimming pool dimensions (50m x 25yd x 8ft) based on California Department of Fish & Wildlife, Final Joint EIS/EIR for the RMDP and SCP Project (June 2010; SCH No. 2000011025), Volume VII – Appendix F8.0 [ENVIRON International Corporation, Climate Change Technical Addendum (October 2009). Table 3-F-2.

Abbreviations:

BTU - British thermal units
CalEEMod® - CALifornia Emissions Estimator MODel
CFR - Code of Federal Regulations
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
ES - Entrada South
F - Fahrenheit
ft - feet
gal - gallon
GHG - greenhouse gases
hr - hour
hrs - hours
kWh - kilowatt-hour
lb - pound
m - meter
MMBTU - million British thermal units
MT - metric tonnes
NRSP - Newhall Ranch Specific Plan
RPS - Renewable Portfolio Standards
yd - yard
yr - year

Table 2-14b. GHG Emissions Associated with Electricity and Natural Gas

RMDP/SCP

Los Angeles County, California

Area	CalEEMod® Land Use	Project Entitlement	Electricity Use[1]	Natural Gas Use[1]	Associated with Electricity Use	Associated with Natural Gas Burning	Unmitigated Total
			kWh/yr	kBTU/yr	MT CO_2e/yr		
ES	Condo/Townhouse	Condo/townhouse general	4,749,610	12,840,300	812	689	1,502
	Elementary School	Elementary/Middle School	370,800	563,400	63	30	94
	General Office Building	Commercial Office	838,125	589,375	143	32	175
	Health Club	Recreational Center	63,382	129,109	11	7	18
	Hotel	Hotel	1,568,000	4,316,000	268	232	500
	Regional Shopping Center	Commercial Center	2,229,380	247,500	381	13	395
	Single Family Housing	Single Family Housing	2,520,920	9,416,000	431	505	937
		Sub-Total	**12,340,217**	**28,101,684**	**2,111**	**1,509**	**3,619**
NRSP	Condo/Townhouse	Condo/townhouse general	41,018,100	110,890,000	7,015	5,953	12,968
	Elementary School	Elementary/Middle School	2,209,970	3,357,860	378	180	558
	General Light Industry	Fire Station	313,126	637,837	54	34	88
	General Office Building	Commercial Office	13,718,430	9,646,890	2,346	518	2,864
	Golf Course	Golf Course	0	0	0	0	0
	Health Club	Recreational Center	409,618	834,391	70	45	115
	High School	High School	880,032	1,337,140	151	72	222
	Hotel	Hotel	784,000	2,158,000	134	116	250
	Industrial Park	Industrial Park	8,625,960	8,467,200	1,475	455	1,930
	Library	Library	340,560	693,720	58	37	95
	Office Park	Business Park	4,753,080	2,873,880	813	154	967
	Regional Shopping Center	Commercial Center	38,606,800	4,286,040	6,603	230	6,833
	Single Family Housing	Single Family Housing	48,981,200	182,952,000	8,377	9,821	18,198
		Sub-Total	**160,640,876**	**328,134,958**	**27,474**	**17,615**	**45,089**
VCC	Industrial Park	Industrial Park	26,243,000	25,760,000	4,488	1,383	5,871
	Office Park	Business Park	16,137,000	9,757,000	2,760	524	3,284
		Sub-Total	**42,380,000**	**35,517,000**	**7,248**	**1,907**	**9,155**
		Total	**215,361,093**	**391,753,642**	**36,833**	**21,030**	**57,862**

Notes:

[1] Energy and natural gas usage for each land use category was estimated assuming compliance with 2016 Title 24. Emissions were estimated using CalEEMod® version 2013.2.2, with energy use estimates adjusted based on ConSol building energy analysis (see Appendix C and Tables 2-13a and 2-13b). Energy use and emissions from the recreational swimming pools are added separately to the emissions inventory and not included here.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
ES - Entrada South
GHG - greenhouse gases
kBTU - 1,000 British thermal units
kWh - kilowatt-hour
MT - metric tonnes
NRSP - Newhall Ranch Specific Plan
SCAQMD - South Coast Air Quality Management District
VCC - Valencia Commerce Center
yr - year

References:

SCAQMD. 2013. CalEEMod® User's Guide. Available at: http://caleemod.com/. Accessed: September 2016.
ConSol, *Newhall Land & Farming Company Residential and Commercial Building Analysis* (2016)

Table 2-15a. Derivation of Ratios to Calculate Water Demand
RMDP/SCP
Los Angeles County, California

Area	Description	RMDP/SCP Alternative 2, 2010 Analysis	Project	Units
		Quantity		
NRSP	Residential Dwelling Units[1]	20,885	19,517	DU
	Commercial Building Area[1]	5,550	5,450	TSF
	Residential % of Potable Demand[2]	93.7%		--
	Commercial % of Potable Demand[2]	6.3%		
	Weighted Ratio of Project DU and TSF to 2010 Project DU and TSF[3]	93.8%		
ES	Residential Dwelling Units[1]	1,725	1,725	DU
	Commercial Building Area[1]	495	450	TSF
	Residential % of Water Demand[4]	76.7%		--
	Commercial % of Water Demand[4]	23.3%		
	Weighted Ratio of Project DU and TSF to 2010 Project DU and TSF[3]	97.9%		
VCC	Residential Dwelling Units[1]	--	--	DU
	Commercial Building Area[1]	3,400	3,400	TSF
	Residential % of Water Demand[5]	--		--
	Commercial % of Water Demand[5]	100%		
	Weighted Ratio of Project TSF to 2010 Project TSF[3]	100.0%		

Notes:

[1] Residential land use DU and commercial land use TSF values are from the 2010 EIR and current Project analyses. Land uses for the current Project are shown in Table 2-1.

[2] The potable water demand for NRSP is from Figure 1 in the 2008 GSI Water Study for NRSP. Total potable demand is 8,135 acre-ft/yr. Residential potable demand is 7,620 acre-ft/yr. Nonresidential potable demand is 500 acre-ft/yr. Demand for the Open Area (15 acre-ft/yr) is assigned to the nonresidential land use type so that all water is included in the scaling factor.

[3] The water demand percentages are used to adjust the water demand from the 2010 EIR to the Project analysis.

[4] The split between residential and non-residential water demand is based on the ratio of water that would be used for residential versus non-residential land uses if CalEEMod® defaults were used to calculate water demand. A reference CalEEMod® run, using the ES land use types and unit counts, results in total default water demand of 183.2 Mgal/yr for residential land uses and 55.7 Mgal/yr for non-residential land uses, which equates to 76.7% and 23.3% of total water demand, respectively.

[5] VCC does not include any residential dwelling units. Thus, all water is allocated to non-residential land uses for purpose of adjusting total water demand from the 2010 EIR to the Project analysis.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
EIR - Environmental Impact Report
ES - Entrada South
DU - dwelling unit
ft - feet
Mgal - million gallons
NRSP - Newhall Ranch Specific Plan
TSF - thousand square feet
VCC - Valencia Commerce Center
yr - year

Table 2-15b. Project Water Demand
RMDP/SCP
Los Angeles County, California

Area	Description[1]	RMDP/SCP Alternative 2, 2010 FEIR[2]				Water Demand (2030 Project)[3]	
		Quantity	Units	Quantity	Units	Quantity	Units
NRSP	Indoor Water Demand	5,230	Acre-ft/yr	1,704	Mgal/yr	1,278	Mgal/yr
	Outdoor Water Demand	11,170	Acre-ft/yr	3,640	Mgal/yr	3,412	Mgal/yr
	Total Water Demand	16,400	Acre-ft/yr	5,344	Mgal/yr	4,690	Mgal/yr
	Recycled Water	8,265	Acre-ft/yr	2,693	Mgal/yr	2,525	Mgal/yr
	% Recycled Water (of outdoor water)	74%				74%	
ES	Indoor Water Demand	1,106	Acre-ft/yr	361	Mgal/yr	282	Mgal/yr
	Outdoor Water Demand	1,323	Acre-ft/yr	431	Mgal/yr	422	Mgal/yr
	Total Water Demand	2,429	Acre-ft/yr	791	Mgal/yr	704	Mgal/yr
	Recycled Water	979	Acre-ft/yr	319	Mgal/yr	312	Mgal/yr
	% Recycled Water (of outdoor water)[4]	74%				74%	
VCC	Indoor Water Demand	391	Acre-ft/yr	127	Mgal/yr	102	Mgal/yr
	Outdoor Water Demand	689	Acre-ft/yr	225	Mgal/yr	225	Mgal/yr
	Total Water Demand	1,080	Acre-ft/yr	352	Mgal/yr	326	Mgal/yr
	Recycled Water	510	Acre-ft/yr	166	Mgal/yr	166	Mgal/yr
	% Recycled Water (of outdoor water)[4]	74%				74%	

Notes:

[1] The sum of indoor water demand and outdoor water demand equals total water demand. The recycled water is assumed to only be used outdoors. Recycled water percentage is calculated as the recycled water divided by the outdoor water demand.

[2] Water usage based on California Department of Fish & Wildlife, Final Joint EIS/EIR for the RMDP and SCP Project (June 2010; SCH No. 2000011025), Volume VII – Appendix F8.0 [ENVIRON International Corporation, Climate Change Technical Addendum (October 2009), Tables 3-E-2-NRSP, 3-E-2-Entrada, and 3-E-2-VCC. Converted from acre-ft/yr to Mgal/yr to input into CalEEMod®.

[3] The weighted ratio of project DU and TSF to 2010 DU and TSF shown in Table 2-15a were used to calculate the 2030 water demand. An additional 20% reduction of indoor water usage was taken based on regulations requiring water efficient fixtures passed since the water study performed for the 2010 EIR.

[4] The percentage of outdoor water that is recycled for ES and VCC is assumed to be the same as for NRSP.

Abbreviations

CalEEMod® - CALifornia Emissions Estimator MODel
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
ES - Entrada South
DU - dwelling unit
FEIR - Final Environmental Impact Report
ft - feet
Mgal - million gallons
NRSP - Newhall Ranch Specific Plan
TSF - thousand square feet
VCC - Valencia Commerce Center
yr - year

Table 2-15c. GHG Emissions Reductions Associated with Recycled Water
RMDP/SCP
Los Angeles County, California

Area		**ES**				**NRSP**				**VCC**			
Category		**Unmitigated Project (if no recycled water)**		**Unmitigated Project**		**Unmitigated Project (if no recycled water)**		**Unmitigated Project**		**Unmitigated Project (if no recycled water)**		**Unmitigated Project**	
Total Outdoor Water Use (Mgal/yr)[1]		422		422		3,412		3,412		225		225	
Outdoor Water Source		Recycled Water	Potable Water	Recycled Water	Potable Water	Recycled Water	Potable Water	Recycled Water	Potable Water	Recycled Water	Potable Water	Recycled Water	Potable Water
Percentage by Source[1]		0%	100%	74%	26%	0%	100%	74%	26%	0%	100%	74%	26.0%
Water Use by Source (Mgal/yr)		0	422	312	110	0	3,412	2,525	887	0	225	166	58
Electricity Intensity Factors (kWh/Mgal)[2]	Supply	--	9,727	--	9,727	--	2,917	--	2,917	--	9,727	--	9,727
	Treat	111	111	111	111	111	111	111	111	111	111	111	111
	Distribute	1,272	1,272	1,272	1,272	1,272	1,272	1,272	1,272	1,272	1,272	1,272	1,272
Annual Energy Use by Source (kWh/yr)[3]		0	4,686,453	431,702	1,218,478	0	14,672,721	3,492,176	3,814,907	0	2,494,728	229,807	648,629
Total Annual Energy Use (kWh/yr)		4,686,453		1,650,180		14,672,721		7,307,083		2,494,728		878,436	
Electricity Intensity Factors[4]	(lb CO_2/MWh)	374.54		374.54		374.54		374.54		374.54		374.54	
	(lb CH_4/MWh)	0.029		0.029		0.029		0.029		0.029		0.029	
	(lb N_2O/MWh)	0.006		0.006		0.006		0.006		0.006		0.006	
GHG Emissions[5]	(MT CO_2/yr)	796.17		280.35		2,492.73		1,241.39		423.83		149	
	(MT CH_4/yr)	0.06		0.02		0.19		0.10		0.03		0.01	
	(MT N_2O/yr)	0.013		0.004		0.040		0.020		0.007		0.002	
Global Warming Potentials[6]	CO_2	1		1		1		1		1		1	
	CH_4	25		25		25		25		25		25	
	N_2O	298		298		298		298		298		298	
Total GHG Emissions (MT CO_2e/yr)		**801.5**		**282.2**		**2,509.5**		**1,249.7**		**426.7**		**150.2**	
GHG Reduction due to Recycled Water (MT CO_2e/yr)[7]		**519**				**1,260**				**276**			

Notes:

[1] Outdoor and recycled water usage based on Water Demand as shown in Table 2-15a.

[2] CalEEMod® default assumptions are used for average embodied energy for the supply and conveyance, treatment and distribution of water, as well as treatment of wastewater, for Southern California. For NRSP, the electricity intensity value of 2,917 was used to represent on-site groundwater as the source of water.

[3] For potable water, the water use is multiplied by the sum of the electricity intensity factors to supply, treat and distribute the water. For recycled water, the water use is multiplied by the sum of the electricity intensity factors to treat and distribute the water, since the Project has an onsite water treatment facility which supplies the water.

[4] The CO_2 emission intensity factor reflects 50% RPS for 2030 for the Project Condition.

[5] GHG emissions were calculated by multiplying the annual energy use by the electricity intensity factor for each pollutant.

[6] Global warming potentials are the AR4 global warming potentials. Source: IPCC Fourth Assessment Report: Climate Change 2007. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016.

[7] GHG reduction from using recycled water for outdoor use was calculated as the difference between GHG emissions from using 100% potable water minus GHG emissions from using 74.0% recycled water (Project) for outdoor water usage.

Abbreviations:

AR4 - Fourth Assessment Report
CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
CH_4 - methane
ES - Entrada South
GHG - greenhouse gases
IPCC - Intergovernmental Panel on Climate Change
kWh - kilowatt-hour
lb - pound
Mgal - million gallons
MT - metric tonnes
N_2O - nitrous oxide
NRSP - Newhall Ranch Specific Plan
RPS - Renewable Portfolio Standard
VCC - Valencia Commerce Center
yr - year

Table 2-15d. GHG Emissions Associated with Water Usage
RMDP/SCP
Los Angeles County, California

Area	CalEEMod® Land Use	Project Assumption	Indoor Water Use[1]	Outdoor Water Use[1]	Unmitigated Project CO_2e Emissions[2]
			Mgal/yr		MT/yr
ES	Condo/Townhouse	Condo/townhouse general	162.31	244.33	1046.63
	Elementary School	Elementary/Middle School	3.49	21.44	53.27
	General Office Building	Commercial Office	21.51	31.47	136.98
	Health Club	Recreational Center	0.76	1.11	4.85
	Hotel	Hotel	13.93	3.70	57.02
	Regional Shopping Center	Commercial Center	26.75	39.14	170.35
	Single Family Housing	Single Family Housing	53.56	80.63	345.40
	Sub-Total		**282**	**422**	**1,814**
				GHG Reduction due to Outdoor Recycled Water (MT CO_2e/yr)[3]	**519**
				Sub-Total	**1,295**
NRSP	Condo/Townhouse	Condo/townhouse general	475.13	1145.62	1993.96
	Elementary School	Elementary/Middle School	7.10	69.85	68.58
	General Light Industry	Fire Station	4.97	0.00	12.04
	General Office Building	Commercial Office	118.38	277.49	490.93
	Golf Course	Golf Course	0.00	534.03	392.74
	Health Club	Recreational Center	1.66	3.88	6.87
	High School	High School	7.17	70.51	69.23
	Hotel	Hotel	2.36	1.00	6.46
	Industrial Park	Industrial Park	113.82	0.00	275.83
	Library	Library	0.73	4.39	5.00
	Office Park	Business Park	37.49	87.88	155.49
	Regional Shopping Center	Commercial Center	156.59	367.06	649.41
	Single Family Housing	Single Family Housing	352.75	850.55	1480.38
	Sub-Total		**1,278**	**3,412**	**5,607**
				GHG Reduction due to Outdoor Recycled Water (MT CO_2e/yr)[3]	**1,260**
				Sub-Total	**4,347**
VCC	Industrial Park	Industrial Park	74.51	0.00	267.35
	Office Park	Business Park	27.39	224.55	524.93
	Sub-Total		**102**	**225**	**792**
				GHG Reduction due to Outdoor Recycled Water (MT CO_2e/yr)[3]	**276**
				Sub-Total	**516**
				RMDP/SCP Total[4]	**6,158**

Notes:

[1] The indoor and outdoor water use determined in Table 2-15a.

[2] Emissions associated with water usage were estimated using CalEEMod® version 2013.2.2 and includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective AR4 global warming potentials. Source: Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4): Climate Change 2007, Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016. Electricity intensity factor used in these calculation reflects 50% RPS. NRSP uses groundwater on-site, and hence a lower electricity intensity factor to represent the supply via groundwater (2,917 kWh/Mgal) was used. For ES and VCC, CalEEMod® default electricity intensity factor to supply (9,727 kWh/Mgal) was used. The CalEEMod® wastewater treatment intensity values incorporate electricity required for pumping of wastewater.

[3] The project assumes some water will be non-potable/recycled water consistent with the Final Joint EIS/EIR for the RMDP and SCP Project and the mandate by the State Water Resources Board. See Table 2-15b.

[4] The direct and indirect emissions associated with the Newhall Ranch Water Reclamation Plant (WRP) are captured through the wastewater emission estimates for each of the other Project land uses that will send wastewater to the WRP. Additional wastewater emissions to the full capacity of the WRP are shown in Table 2-15e and conservatively added to the total NRSP water emissions in the summary tables. The analysis assumes the CalEEMod default mix of approaches to wastewater treatment for 'Los Angeles - South Coast'.

[5] To be consistent with the required California regulatory standards, the project assumes 20 percent reduction in the indoor water usage.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
ES - Entrada South
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
GHG - greenhouse gases
kWh - kilowatt-hour
Mgal - million gallons
MT - metric tonnes
N_2O - nitrous oxide
NRSP - Newhall Ranch Specific Plan
RPS - Renewable Portfolio Standard
VCC - Valencia Commerce Center
yr - year

References:

GSI Water Solutions. 2014. Water Demand Projections for Entrada North Village. September.

Table 2-15e. Additional GHG Emissions Associated with the Water Reclamation Plant
RMDP/SCP
Los Angeles County, California

Amount of Wastewater	**Amount**	**Units**
Generated by NRSP (Mgal)[1]	1,278	Mgal/yr
Maximum Capacity for the WRP (Mgal)[2]	2,482	Mgal/yr
Additional Wastewater Assumed to Represent Maximum Capacity of the WRP (Mgal)	1,204	Mgal/yr
Indirect Emissions Associated with Additional Wastewater[3]	**--**	**--**
Electricity to Treat Wastewater	1,911	kWh/Mgal
Electricity Intensity Factor	377.05	lb CO_2e/MWh
Indirect Emissions	393	MT CO_2e/yr
Direct Emissions Associated with Additional Wastewater[4]	--	--
Septic Tank Emission Factor	5.91E-06	MT CO_2e/gal
Aerobic Emission Factor	6.14E-07	MT CO_2e/gal
Facultative Lagoon Emission Factor	9.70E-06	MT CO_2e/gal
Direct Emissions	1,639	--
Total Emissions	**2,032**	**MT CO_2e/yr**

Notes:

[1] Wastewater Generated by NRSP is equal to the indoor water consumption shown in Table 2-15d with a 20% reduction due to regulatory measures.

[2] Based on the water demand estimate for NRSP and with the improved water efficiency standards since the WRP EIR was certified, it is not assumed that the WRP will treat to the full 6.8 MGD capacity. To be conservative, the direct and indirect emissions from treatment of additional wastewater up to 6.8 MGD are estimated here. The 6.8 MGD is multiplied by 365 days to represent a full year.

[3] Indirect electricity emissions associated with wastewater treatment use a CalEEMod® default factor for 'Los Angeles - South Coast' of 1,911 kWh per Mgal of wastewater (CalEEMod® Appendix D Table 9.2). The 2030 emission factor assumes 50% RPS.

[4] Emissions are calculated based on the CalEEMod® default factors for 'Los Angeles - South Coast'. Direct emissions are based on a default split between septic tank, aerobic, and anaerobic wastewater treatment types (10.33%, 87.46%, and 2.21% respectively), as shown in CalEEMod® Appendix D Table 9.4. The gas produced by anaerobic digesters may be flared or sent to a cogeneration process; in this calculation, it is assumed all gas is flared or released as fugitive methane, as this is the default described in CalEEMod® Appendix A section 8.4.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
EIR - Environmental Impact Report
gal -gallons
GHG - greenhouse gases
lb - pound
kWh - kilowatt-hour
Mgal - million gallons
MGD - million gallons per day
MT - metric tonnes
MWh - megawatt-hour
NRSP - Newhall Ranch Specific Plan
WRP - Water Reclamation Plant
yr - year

Table 2-16. GHG Emissions Associated with Solid Waste
RMDP/SCP
Los Angeles County, California

Area	CalEEMod® Land Use	Project Assumption	Unmitigated Project Waste Disposed[1]	Unmitigated Project CO_2e Emissions Associated with Waste[1]
			tons/yr	MT CO_2e/yr
ES	Condo/Townhouse	Condo/townhouse general	1,417	712
	Elementary School	Elementary/Middle School	35	18
	General Office Building	Commercial Office	176	88
	Health Club	Recreational Center	3	2
	Hotel	Hotel	235	118
	Regional Shopping Center	Commercial Center	527	265
	Single Family Housing	Single Family Housing	467	235
	Sub-Total		**2,859**	**1,438**
NRSP	Condo/Townhouse	Condo/townhouse general	12,234	6,153
	Elementary School	Elementary/Middle School	176	88
	General Light Industry	Fire Station	53	27
	General Office Building	Commercial Office	2,873	1,445
	Golf Course	Golf Course	49	25
	Health Club	Recreational Center	21	11
	High School	High School	35	18
	Hotel	Hotel	117	59
	Industrial Park	Industrial Park	1,592	801
	Library	Library	35	18
	Office Park	Business Park	682	343
	Regional Shopping Center	Commercial Center	9,120	4,586
	Single Family Housing	Single Family Housing	9,083	4,568
	Sub-Total		**36,072**	**18,141**
VCC	Industrial Park	Industrial Park	4,844	2,436
	Office Park	Business Park	2,317	1,165
	Sub-Total		**7,160**	**3,601**
		Total Residential	23,202	11,668
		Total	**46,091**	**23,179**

Notes:

[1] Solid waste disposal rates were based on actual 2012 disposal rates for the City of Santa Clarita. Solid waste generation and associated emissions for the Project scenario assume 75 percent waste diversion, based on California (statewide) waste diversion goal. Available at: http://www.calrecycle.ca.gov/75percent/. Accessed: September 2016.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
ES - Entrada South
MT - metric tonnes
NRSP - Newhall Ranch Specific Plan
VCC - Valencia Commerce Center
yr - year

Table 2-17a. SCVCTM Daily Tripend Generation
RMDP/SCP
Los Angeles County, California

Area	Land Use Type[1]	Units		Productions or Attractions	Daily Tripend Generation[2]						
					H-W	H-S	H-O	O-W	O-O	Total	Total
ES	Single Family (6-10du/ac)	428	DU	P	932	636	1,143	85	466	3,262	**4,238**
				A	0	1	424	85	466	976	
	Condominium/Townhouse	1,297	DU	P	2,075	1,764	3,527	207	935	8,508	**10,376**
				A	0	0	726	207	935	1,868	
	Commercial Center (10-30ac)	188	TSF	P	0	0	2	304	2,541	2,847	**10,164**
				A	914	2,034	1,524	304	2,541	7,317	
	Hotel	286	rooms	P	0	0	0	141	424	565	**2,354**
				A	282	0	942	141	424	1,789	
	Elementary/Middle School	750	STU	P	0	0	0	0	33	33	**1,088**
				A	109	630	283	0	33	1,055	
	Commercial Office	63	TSF	P	0	0	0	80	131	211	**729**
				A	198	0	109	80	131	518	
	Developed Park	10.5	AC	P	0	0	0	0	3	3	**27**
				A	0	0	21	0	3	24	
	Subtotal Trip Ends			**P**	**3,007**	**2,400**	**4,672**	**817**	**4,533**	**15,429**	**28,976**
				A	**1,503**	**2,665**	**4,029**	**817**	**4,533**	**13,547**	
NRSP	Single Family (1-5du/ac)	81	DU	P	176	120	216	16	89	617	**802**
				A	0	0	80	16	89	185	
	Single Family (6-10du/ac)	8,235	DU	P	17,935	12,228	22,020	1,628	8,968	62,779	**81,526**
				A	0	0	8,151	1,628	8,968	18,747	
	Condominium/Townhouse	11,201	DU	P	17,918	15,234	30,466	1,796	8,063	73,477	**89,608**
				A	0	0	6,272	1,796	8,063	16,131	
	Commercial Center (10-30ac)	3,247	TSF	P	0	0	0	5,265	43,883	49,148	**175,533**
				A	15,798	35,110	26,329	5,265	43,883	126,385	
	Hotel	143	rooms	P	0	0	0	71	212	283	**1,177**
				A	141	0	470	71	212	894	
	Elementary/Middle School	4,500	STU	P	0	0	0	0	196	196	**6,526**
				A	654	3,784	1,696	0	196	6,330	
	High School	2,500	STU	P	0	0	0	0	134	134	**4,475**
				A	448	1,790	1,969	0	134	4,341	
	Library	36	TSF	P	0	0	0	275	520	795	**3,059**
				A	489	0	980	275	520	2,264	
	Industrial Park	756	TSF	P	0	0	0	318	953	1,271	**4,536**
				A	1,767	0	227	318	953	3,265	
	Business Park	324	TSF	P	0	0	0	232	694	926	**3,304**
				A	1,287	0	165	232	694	2,378	
	Utilities	133	TSF	P	0	0	0	28	53	81	**317**
				A	60	0	95	28	53	236	
	Commercial Office	1,023	TSF	P	0	0	0	1,300	2,128	3,428	**11,825**
				A	3,195	0	1,774	1,300	2,128	8,397	
	Golf Course	180	AC	P	0	0	0	0	387	387	**1,433**
				A	115	0	544	0	387	1,046	
	Developed Park	100	AC	P	0	0	0	0	32	32	**261**
				A	2	0	195	0	32	229	
	Subtotal Trip Ends			**P**	**36,029**	**27,582**	**52,702**	**10,929**	**66,312**	**193,554**	**384,382**
				A	**23,956**	**40,684**	**48,947**	**10,929**	**66,312**	**190,828**	
VCC	Industrial Park	2,300	TSF	P	0	0	0	966	2,897	3,863	**13,800**
				A	5,384	0	690	966	2,897	9,937	
	Business Park	1,100	TSF	P	0	0	0	786	2,356	3,142	**11,220**
				A	4,374	0	562	786	2,356	8,078	
	Subtotal Trip Ends			**P**	**0**	**0**	**0**	**1,752**	**5,253**	**7,005**	**25,020**
				A	**9,758**	**0**	**1,252**	**1,752**	**5,253**	**18,015**	
Total Trip Ends					**74,253**	**73,331**	**111,602**	**26,996**	**152,196**	**438,378**	**438,378**

Notes:
[1] Land Use Type lists the nomenclature consistent with trip information.
[2] The tripends are provided by Stantec as included in Appendix D. These include the double-counted internal trip ends for the five different trip categories: Home to Work, Home to Shopping, Home to Other, Other to Work, Other to Other from the SCVCTM. Productions are the trips that the building produces, and attractions refer to the trips that the building attracts.

Abbreviations:
A - Attraction
AC/ac - acre
DU/du - dwelling unit
ES - Entrada South
H-O - Home to Other
H-W - Home to Work
H-S - Home to Shopping
NRSP - Newhall Ranch Specific Plan
O-W - Other to Work
O-O - Other to Other
P - Production
STU - students
SCVCTM - Santa Clarita Valley Consolidated Traffic Model
TSF - thousand square feet
VCC - Valencia Commerce Center

Table 2-17b. SCVCTM Average Trip Length Data
RMDP/SCP
Los Angeles County, California

	Productions or Attractions	Trip Types				
		H-W	H-S	H-O	O-W	O-O
Average Trip Lengths by Trip Type (miles)[1]	P	10.696	5.179	7.040	8.906	7.620
	A	16.030	15.042	13.274	11.102	10.527

Notes:
[1] The trip lengths are modeled by Stantec using the SCVCTM as shown in Appendix D.

Abbreviations:
A - Attraction
H-O - Home to Other
H-W - Home to Work
H-S - Home to Shopping
O-W - Other to Work
O-O - Other to Other
P - Production
SCVCTM - Santa Clarita Valley Consolidated Traffic Model

Table 2-17c. SCVCTM Tripend Internalization Percentages
RMDP/SCP
Los Angeles County, California

Tripend Internalization % Type[1]	Productions or Attractions	H-W	H-S	H-O	O-W	O-O
Residential	P	22%	59%	59%	47%	47%
	A	0%	60%	60%	44%	44%
Non-Residential	P	0%	0%	0%	47%	47%
	A	25%	46%	46%	48%	48%
Schools/Parks	P	0%	0%	0%	65%	65%
	A	24%	86%	86%	65%	65%

Notes:

[1] The tripend internalization percentage represents the percentage of the tripends for each land use type which are internal to the Project. This was modeled by Stantec using the SCVCTM that was used to generate the tripends and trip lengths as shown in Appendix D.

Abbreviations:

A - Attraction
H-O - Home to Other
H-W - Home to Work
H-S - Home to Shopping
O-W - Other to Work
O-O - Other to Other
P - Production
SCVCTM - Santa Clarita Valley Consolidated Traffic Model

Table 2-17d. Daily Trip Generation (Adjusted Internal Trips)
RMDP/SCP
Los Angeles County, California

Area	Land Use Type[1]	Productions or Attractions	Daily Trip Generation (Adjusted Internal Trips)[2]						Total Daily Trips
			H-W	H-S	H-O	O-W	O-O	Total	
ES	Single Family (6-10du/ac)	P	829	449	806	65	356	2,506	3,233
		A	0	1	297	66	363	727	
	Condominium/Townhouse	P	1,846	1,245	2,488	158	715	6,452	7,851
		A	0	0	508	161	729	1,399	
	Commercial Center (10-30ac)	P	0	0	2	233	1,944	2,178	7,882
		A	802	1,566	1,173	231	1,931	5,704	
	Hotel	P	0	0	0	108	324	432	1,834
		A	247	0	725	107	322	1,402	
	Elementary/Middle School	P	0	0	0	0	22	22	660
		A	96	359	161	0	22	638	
	Commercial Office	P	0	0	0	61	100	161	579
		A	174	0	84	61	100	418	
	Developed Park	P	0	0	0	0	2	2	16
		A	0	0	12	0	2	14	
	Subtotal Trips	**P**	**2,675**	**1,693**	**3,297**	**625**	**3,465**	**11,754**	**22,057**
		A	**1,319**	**1,926**	**2,961**	**627**	**3,470**	**10,302**	
NRSP	Single Family (1-5du/ac)	P	157	85	152	12	68	474	612
		A	0	0	56	12	69	138	
	Single Family (6-10du/ac)	P	15,953	8,627	15,535	1,245	6,861	48,221	62,192
		A	0	0	5,706	1,270	6,995	13,971	
	Condominium/Townhouse	P	15,938	10,748	21,494	1,374	6,168	55,722	67,802
		A	0	0	4,390	1,401	6,289	12,080	
	Commercial Center (10-30ac)	P	0	0	0	4,028	33,570	37,598	136,121
		A	13,863	27,035	20,273	4,001	33,351	98,523	
	Hotel	P	0	0	0	54	162	216	917
		A	124	0	362	54	161	701	
	Elementary/Middle School	P	0	0	0	0	133	133	3,960
		A	574	2,155	966	0	132	3,828	
	High School	P	0	0	0	0	91	91	2,715
		A	393	1,019	1,121	0	91	2,625	
	Library	P	0	0	0	210	398	608	2,396
		A	429	0	755	209	395	1,788	
	Industrial Park	P	0	0	0	243	729	972	3,664
		A	1,551	0	175	242	724	2,691	
	Business Park	P	0	0	0	177	531	708	2,669
		A	1,129	0	127	176	527	1,960	
	Utilities	P	0	0	0	21	41	62	249
		A	53	0	73	21	40	187	
	Commercial Office	P	0	0	0	995	1,628	2,622	9,397
		A	2,804	0	1,366	988	1,617	6,775	
	Golf Course	P	0	0	0	0	262	262	934
		A	101	0	310	0	262	672	
	Developed Park	P	0	0	0	0	22	22	156
		A	2	0	111	0	22	134	
	Subtotal Trips	**P**	**32,048**	**19,459**	**37,181**	**8,361**	**50,663**	**147,712**	**293,785**
		A	**21,022**	**30,209**	**35,791**	**8,375**	**50,677**	**146,074**	
VCC	Industrial Park	P	0	0	0	739	2,216	2,955	11,147
		A	4,724	0	531	734	2,202	8,192	
	Business Park	P	0	0	0	601	1,802	2,404	9,062
		A	3,838	0	433	597	1,791	6,659	
	Subtotal Trips	**P**	**0**	**0**	**0**	**1,340**	**4,019**	**5,359**	**20,209**
		A	**8,563**	**0**	**964**	**1,332**	**3,992**	**14,850**	
Total Trips			**65,626**	**53,287**	**80,194**	**20,659**	**116,285**	**336,051**	**336,051**

Notes:

[1] Land Use Type lists the nomenclature consistent with trip information.

[2] Given that many trips have both their starting point and destination within the planning area, there is a double counting of trips, with a production for one building comprising the same trip as an attraction for another building. For example, per the SCVCTM, 22% of H-W residential production trip ends are internal; therefore, if all H-W residential production trip ends are summed without adjustment, there will be a 11% (22/2) overestimation of the actual number of trip ends. The SCVCTM trip ends are adjusted to eliminate the double counting by subtracting 11% of the trip ends from the H-W residential production SCVCTM data (see Appendix D and Table 2-17a). The resulting value represents the trip generation. This method is carried out for each trip category (H-W, H-S, H-O, O-W, and O-O), each land use type (Residential, Non-Residential, and Schools/Parks) and each trip type (Production and Attraction). Internalization percentages are shown in Table 2-17c.

Abbreviations:

A - Attraction
ac - acre
du - dwelling unit
ES - Entrada South
H-O - Home to Other
H-W - Home to Work
H-S - Home to Shopping
NRSP - Newhall Ranch Specific Plan
O-W - Other to Work
O-O - Other to Other
P - Production
SCVCTM - Santa Clarita Valley Consolidated Traffic Model
VCC - Valencia Commerce Center

Table 2-17e. Calculating Total Daily VMT
RMDP/SCP
Los Angeles County, California

Land Use				VMT from SCVCTM with Adjusted Internal Trips							
Area	Land Use Type[1]	Units[4]		Productions or Attractions	H-W (mi)[2]	H-S (mi)[2]	H-O (mi)[2]	O-W (mi)[2]	O-O (mi)[2]	Total Daily VMT with Adjusted Internal Trips[3] (mi)	
ES	Single Family (6-10du/ac)[5]	428	DU	P	8,867	2,324	5,677	579	2,716	20,163	28,676
				A	0	11	3,940	736	3,826	8,512	
	Condominium/Townhouse	1,297	DU	P	19,742	6,445	17,518	1,410	5,450	50,565	66,781
				A	0	0	6,746	1,793	7,677	16,215	
	Commercial Center (10-30ac)	187.5	TSF	P	0	0	14	2,071	14,812	16,898	91,783
				A	12,857	23,559	15,576	2,565	20,329	74,886	
	Hotel	286	rooms	P	0	0	0	961	2,472	3,432	21,609
				A	3,967	0	9,628	1,190	3,392	18,176	
	Elementary/Middle School	750	STU	P	0	0	0	0	170	170	9,475
				A	1,534	5,397	2,139	0	235	9,305	
	Commercial Office	62.5	TSF	P	0	0	0	545	764	1,309	6,931
				A	2,785	0	1,114	675	1,048	5,622	
	Developed Park	6.7	TSF	P	0	0	0	0	15	15	196
				A	0	0	159	0	21	180	
	Subtotal VMT									**225,451**	**225,451**
NRSP	Single Family (1-5du/ac)	81	DU	P	1,674	438	1,073	109	519	3,814	556,945
				A	0	0	743	139	731	1,613	
	Single Family (6-10du/ac)	8,235	DU	P	170,635	44,678	109,367	11,092	52,277	388,050	
				A	0	0	75,735	14,098	73,636	163,469	
	Condominium/Townhouse	11,201	DU	P	170,474	55,662	151,316	12,236	47,002	436,689	576,723
				A	0	0	58,276	15,553	66,205	140,034	
	Commercial Center (10-30ac)	3,247	TSF	P	0	0	0	35,871	255,807	291,678	1,585,167
				A	222,223	406,660	269,099	44,424	351,083	1,293,489	
	Hotel	143	rooms	P	0	0	0	484	1,236	1,720	10,802
				A	1,983	0	4,804	599	1,696	9,082	
	Elementary/Middle School	4,500	STU	P	0	0	0	0	1,011	1,011	56,847
				A	9,205	32,416	12,821	0	1,395	55,836	
	High School	2,500	STU	P	0	0	0	0	691	691	38,169
				A	6,305	15,334	14,884	0	954	37,477	
	Library	36.0	TSF	P	0	0	0	1,874	3,031	4,905	28,280
				A	6,879	0	10,016	2,320	4,160	23,375	
	Industrial Park	756	TSF	P	0	0	0	2,167	5,555	7,722	45,205
				A	24,856	0	2,320	2,683	7,624	37,483	
	Business Park	324	TSF	P	0	0	0	1,581	4,046	5,626	32,926
				A	18,104	0	1,686	1,958	5,552	27,300	
	Utilities	33.1	TSF	P	0	0	0	191	309	500	2,975
				A	844	0	971	236	424	2,475	
	Commercial Office	1,023	TSF	P	0	0	0	8,857	12,405	21,262	112,329
				A	44,943	0	18,131	10,969	17,025	91,068	
	Golf Course	180	AC	P	0	0	0	0	1,996	1,996	10,481
				A	1,619	0	4,112	0	2,754	8,485	
	Developed Park	43.3	TSF	P	0	0	0	0	165	165	1,895
				A	28	0	1,474	0	228	1,730	
	Subtotal VMT									**3,058,743**	**3,058,743**

Table 2-17e. Calculating Total Daily VMT
RMDP/SCP
Los Angeles County, California

Land Use				VMT from SCVCTM with Adjusted Internal Trips							
Area	**Land Use Type**[1]	**Units**[4]		**Productions or Attractions**	**H-W (mi)**[2]	**H-S (mi)**[2]	**H-O (mi)**[2]	**O-W (mi)**[2]	**O-O (mi)**[2]	**Total Daily VMT with Adjusted Internal Trips**[3] **(mi)**	
VCC	Industrial Park	2,300	TSF	P	0	0	0	6,581	16,887	23,469	137,583
				A	75,734	0	7,052	8,151	23,177	114,114	
	Business Park	1,100	TSF	P	0	0	0	5,355	13,734	19,089	111,841
				A	61,527	0	5,744	6,632	18,849	92,752	
	Subtotal VMT									**249,424**	**249,424**
	Total VMT									**3,533,618**	**3,533,618**

Notes:

[1] Land Use Type lists the nomenclature consistent with trip information.

[2] The VMT were calculated by multiplying the trip length for production trips or attraction trips by trip type as provided from the SCVCTM (Table 2-17b) with the daily trip generation for the respective category (See Table 2-17d).

[3] This column is the sum of the calculated VMT by trip types.

[4] For certain land uses, unit type or size is mapped from the traffic outputs in Table 2-17a into a form that accurately represents the CalEEMod® inputs in Table 2-17f. The commercial center and commercial office in ES include a decimal place for CalEEMod®. The developed parks are modeled based on building square footage rather than park acreage so that building energy consumption is calculated. The fire station is modeled as a "General Light Industry" building in CalEEMod®. Therefore, the land use TSF is the value of the fire station building instead of the entire land acreage referred as "Utilities." VMT has been calculated using the total trip rate for each of the land uses from Table 2-17a.

[5] Example calculation for ES single family housing:
H-W VMT for Production = (Daily Trip Generation x Trip Length)
8,867 H-W VMT for Production = (829 daily trips) x (10.696 miles)

Abbreviations:

A - Attraction
AC/ac - acre
CalEEMod® - CALifornia Emissions Estimator MODel
DU/du - dwelling unit
ES - Entrada South
H-O - Home to Other
H-W - Home to Work
H-S - Home to Shopping
mi - mile
NRSP - Newhall Ranch Specific Plan
O-W - Other to Work
O-O - Other to Other
P - Production
STU - students
SCVCTM - Santa Clarita Valley Consolidated Traffic Model
TSF - thousand square feet
VCC - Valencia Commerce Center
VMT - vehicle miles traveled

Table 2-17f. Trip Lengths and Trip Rates for CalEEMod®
RMDP/SCP
Los Angeles County, California

Land Use					Total Daily Trip Generation[2] (# of trips)	Total Daily VMT (mi)[3]	CalEEMod® Input Derivation	
Area	Land Use Type[1]	CalEEMod® Land Use Subtype[1]	Units				Average Trip Length[4] (mi)	Trip Rate[5] (# of trips/ unit/weekday)
ES	Single Family (6-10du/ac)[6]	Single Family Housing	428	DU	3,233	28,676	8.9	7.55
	Condominium/Townhouse	Condo/Townhouse	1,297	DU	7,851	66,781	8.5	6.05
	Commercial Center (10-30ac)	Regional Shopping Center	187.5	TSF	7,882	91,783	11.6	42.04
	Hotel	Hotel	286	rooms	1,834	21,609	11.8	6.41
	Elementary/Middle School	Elementary School	750	STU	660	9,475	14.4	0.88
	Commercial Office	General Office Building	62.5	TSF	579	6,931	12.0	9.27
	Developed Park[7]	Health Club	6.7	TSF	16	196	12.2	2.39
				Subtotal	**22,057**	**225,451**	--	--
NRSP	Single Family (1-5du/ac)[7]	Single Family Housing	81	DU	62,803	556,945	8.9	7.55
	Single Family (6-10du/ac)[7]		8,235	DU				
	Condominium/Townhouse	Condo/Townhouse	11,201	DU	67,802	576,723	8.5	6.05
	Commercial Center (10-30ac)	Regional Shopping Center	3,247	TSF	136,121	1,585,167	11.6	41.92
	Hotel	Hotel	143	rooms	917	10,802	11.8	6.41
	Elementary/Middle School	Elementary School	4,500	STU	3,960	56,847	14.4	0.88
	High School	High School	2,500	STU	2,715	38,169	14.1	1.09
	Library	Library	36.0	TSF	2,396	28,280	11.8	66.56
	Industrial Park	Industrial Park	756	TSF	3,664	45,205	12.3	4.85
	Business Park	Office Park	324	TSF	2,669	32,926	12.3	8.24
	Utilities[8]	General Light Industry	33.1	TSF	249	2,975	11.9	7.53
	Commercial Office	General Office Building	1,023	TSF	9,397	112,329	12.0	9.19
	Golf Course	Golf Course	180	AC	934	10,481	11.2	5.19
	Developed Park[9]	Health Club	43.3	TSF	156	1,895	12.1	3.61
				Subtotal	**293,785**	**3,058,743**	--	--

Table 2-17f. Trip Lengths and Trip Rates for CalEEMod®
RMDP/SCP
Los Angeles County, California

Land Use					Total Daily Trip Generation[2] (# of trips)	Total Daily VMT (mi)[3]	CalEEMod® Input Derivation	
Area	Land Use Type[1]	CalEEMod® Land Use Subtype[1]	Units				Average Trip Length[4] (mi)	Trip Rate[5] (# of trips/ unit/weekday)
VCC	Industrial Park	Industrial Park	2,300	TSF	11,147	137,583	12.3	4.85
	Business Park	Office Park	1,100	TSF	9,062	111,841	12.3	8.24
				Subtotal	**20,209**	**249,424**	--	--
				Total	**336,051**	**3,533,618**	--	--

Notes:

[1] Land Use Type lists the nomenclature consistent with trip information. These were matched to land use names for CalEEMod®.

[2] The Total Daily Trip Generation was calculated in Table 2-17d which removes the doubled-counted internal trips.

[3] The Total Daily VMT were calculated as shown in Table 2-17e.

[4] Average trip length to input into CalEEMod® is calculated by dividing the Total Daily VMT by the Total Daily Trip Generation. This trip length differs from the trip lengths from Stantec because of the adjustments to remove the double-counted internal trips and because this is a calculated average trip length for all trip purpose types (e.g., H-W, H-S, H-O, O-W, O-O). CalEEMod® only accepts one decimal place for average trip length, so slight differences in calculated totals may result from rounding.

[5] The trip rate to input into CalEEMod® is calculated by dividing the Total Daily Trip Generation with the corresponding land use's unit (e.g., DU, TSF, Room, Student, AC). This differs from the trip rate from Appendix D because of the adjustments to remove the double-counted internal trips. CalEEMod® only accepts two decimal places for trip rate so slight differences in calculated totals may result from rounding.

[6] Example calculation for ES single family housing:
- Total Daily Trip Generation calculated in Table 2-17d.
- Total Daily VMT with Adjusted Internal Trips is 28,676 miles per weekday (Table 2-17e).
- Average trip length for CalEEMod® is calculated by dividing the Total Daily VMT by the Total Daily Trip Generation: 28,389/3,233 = 8.9.
- Trip Rate for CalEEMod® is calculated by dividing the Total Daily Trip Generation by the number of units: 3,233/428 = 7.55.

[7] Single family housing traffic info was combined in CalEEMod® as one category.

[8] The fire station was modeled as a "General Light Industry" building in CalEEMod®. Therefore, the land use TSF is the value of the fire station building instead of the entire land acreage referred as "Utilities." Trip rate has been calculated by dividing the total trip generation number for "Utilities" by the square footage of the fire station.

[9] "Developed Park" was modeled as "Health Club" to represent the building in the "Developed Park". Therefore, the land use TSF is the value of the "Health Club" building. Trip rate has been calculated by dividing the total trip generation numbers for "Developed Park" by the square footage of the "Health Club."

Abbreviations:

AC/ac - acre
CalEEMod® - CALifornia Emissions Estimator MODel
DU/du - dwelling unit
ES - Entrada South
H-O - Home to Other
H-W - Home to Work
H-S - Home to Shopping
mi - mile
NRSP - Newhall Ranch Specific Plan
O-W - Other to Work
O-O - Other to Other
STU - students
SCVCTM - Santa Clarita Valley Consolidated Traffic Model
TSF - thousand square feet
VCC - Valencia Commerce Center
VMT - vehicle miles traveled

Table 2-17g. CalEEMod® Input Assumptions for Traffic
RMDP/SCP
Los Angeles County, California

Area	CalEEMod® Land Use[1]	Unit	Trip Rate (trips/day/unit)[2]			Trip Length (miles)[2,3]						Trip Link Type (%)[4]		
			Adjusted SCVCTM	Derived with CalEEMod® Data										
			Weekday	Saturday	Sunday	Home Work	Home Shop	Home Other	Commercial Customer	Commercial Work	Commercial Non-Work	Primary	Diverted	Pass-By
ES	Condo/Townhouse	DU	6.05	6.58	5.58	8.5	8.5	8.5	0	0	0	100	0	0
	Elementary School	STU	0.88	0.00	0.00	0	0	0	14.4	14.4	14.4	100	0	0
	General Office Building	TSF	9.27	2.00	0.83	0	0	0	12.0	12.0	12.0	100	0	0
	Health Club	TSF	2.39	1.52	1.94	0	0	0	12.2	12.2	12.2	100	0	0
	Hotel	rooms	6.41	6.43	4.67	0	0	0	11.8	11.8	11.8	100	0	0
	Regional Shopping Center	TSF	42.04	48.92	24.71	0	0	0	11.6	11.6	11.6	100	0	0
	Single Family Housing	DU	7.55	7.96	6.92	8.9	8.9	8.9	0	0	0	100	0	0
NRSP	Condo/Townhouse	DU	6.05	6.58	5.58	8.5	8.5	8.5	0.0	0.0	0.0	100	0	0
	Elementary School	STU	0.88	0.00	0.00	0	0	0	14.4	14.4	14.4	100	0	0
	General Light Industry	TSF	7.53	1.43	0.73	0	0	0	11.9	11.9	11.9	100	0	0
	General Office Building	TSF	9.19	1.98	0.82	0	0	0	12.0	12.0	12.0	100	0	0
	Golf Course	AC	5.19	5.99	6.06	0	0	0	11.2	11.2	11.2	100	0	0
	Health Club	TSF	3.61	2.28	2.93	0	0	0	12.1	12.1	12.1	100	0	0
	High School	STU	1.09	0.39	0.16	0	0	0	14.1	14.1	14.1	100	0	0
	Hotel	rooms	6.41	6.43	4.67	0	0	0	11.8	11.8	11.8	100	0	0
	Industrial Park	TSF	4.85	1.73	0.51	0	0	0	12.3	12.3	12.3	100	0	0
	Library	TSF	66.56	55.09	30.17	0	0	0	11.8	11.8	11.8	100	0	0
	Office Park	TSF	8.24	1.18	0.55	0	0	0	12.3	12.3	12.3	100	0	0
	Regional Shopping Center	TSF	41.92	48.79	24.64	0	0	0	11.6	11.6	11.6	100	0	0
	Single Family Housing	DU	7.55	7.95	6.92	8.9	8.9	8.9	0.0	0.0	0.0	100	0	0
VCC	Industrial Park	TSF	4.85	1.73	0.51	0	0	0	12.3	12.3	12.3	100	0	0
	Office Park	TSF	8.24	1.18	0.55	0	0	0	12.3	12.3	12.3	100	0	0

Notes:

[1] Land Use Type lists the nomenclature consistent with trip information.

[2] The Adjusted SCVCTM Trip Rate for weekdays, as calculated in Table 2-17f, was used as the basis to derive the weekend trip rates. The weekday to weekend ratios for each land use as provided by CalEEMod® were used for the derivation.

[3] Trip lengths are calculated in Table 2-17f and based on the adjusted SCVCTM data that removes the double counted internal trips. While CalEEMod® has options to represent different trip lengths for different trip types, the same trip length was used for all trip types to ensure that the total annual VMT was accurately calculated by CalEEMod® consistent with the VMT from the SCVCTM.

[4] The trip distribution and trip assignment processes utilized in SCVCTM accounts for primary trip, pass-by trips, and diverted trips. When utilizing traffic forecasts produced by the SCVCTM, it is unnecessary to undertake additional steps to calculate the number of diverted trips or pass-by trips since they are reflected in the total trip forecasts produced by the SCVCTM. As a result, this analysis assumes that all trips are "primary" trips.

Abbreviations:

AC - acre
CalEEMod® - California Emissions Estimator Model
DU - dwelling unit
ES - Entrada South
NRSP - Newhall Ranch Specific Plan
SCVCTM - Santa Clarita Valley Consolidated Traffic Model
STU - students
TSF - thousand square feet
VCC - Valencia Commerce Center
VMT - vehicle miles traveled

Table 2-18a. GHG Emissions Associated With Traffic
RMDP/SCP
Los Angeles County, California

Area	CalEEMod® Land Use	Project Assumption	Vehicles Miles Traveled VMT/yr	CO_2e Emissions Associated with Traffic[1,2] MT/yr
ES	Condo/Townhouse	Condo/townhouse general	24,312,550	8,247
	Elementary School	Elementary/Middle School	2,471,040	838
	General Office Building	Commercial Office	1,918,020	651
	Health Club	Recreational Center	65,500	22
	Hotel	Hotel	7,572,376	2,569
	Regional Shopping Center	Commercial Center	32,101,173	10,889
	Single Family Housing	Single Family Housing	10,424,866	3,536
	Sub-Total		**78,865,526**	**26,753**
NRSP	Condo/Townhouse	Condo/townhouse general	209,965,209	71,192
	Elementary School	Elementary/Middle School	14,826,240	5,027
	General Light Industry	Fire Station	815,400	276
	General Office Building	Commercial Office	31,119,660	10,552
	Golf Course	Golf Course	3,983,616	1,351
	Health Club	Recreational Center	633,704	215
	High School	High School	10,998,000	3,729
	Hotel	Hotel	3,786,188	1,284
	Industrial Park	Industrial Park	12,808,911	4,343
	Library	Library	9,234,778	3,131
	Office Park	Business Park	8,896,401	3,016
	Regional Shopping Center	Commercial Center	554,339,841	187,957
	Single Family Housing	Single Family Housing	202,515,689	68,666
	Sub-Total		**1,063,923,637**	**360,739**
VCC	Industrial Park	Industrial Park	38,968,909	13,162
	Office Park	Business Park	30,203,831	10,201
	Sub-Total		**69,172,740**	**23,363**
		Total Residential	447,218,315	151,641
		Total	**1,211,961,903**	**410,855**
		Emissions Reduction due to Phase 2 NHTSA Regulations[3]	--	7,041
		Total Including NHTSA Regulations	--	**403,814**

Notes:

[1] Emissions were estimated using CalEEMod® version 2013.2.2. Emission factors for 2030 Unmitigated Project updated to use EMFAC2014. Emissions associated with Traffic included emissions during running, idling, and startup of vehicles. Emissions by land use were calculated by distributing the total traffic emissions based on the VMT for each land use.

[2] TDM and mitigation measure reductions are not reflected in the Traffic emissions in this table.

[3] Emissions reductions due to the NHTSA Phase 2 GHG standards are calculated in Table 2-18b.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
EMFAC - California Air Resources Board Emissions Factor Model
ES - Entrada South
GHG - greenhouse gases
MT - metric tonnes
NHTSA - National Highway Traffic Safety Administration
NRSP - Newhall Ranch Specific Plan
TDM - Transportation Demand Management
VMT - vehicle miles traveled
VCC - Valencia Commerce Center
yr - year

Table 2-18b. GHG Emissions Reductions Due to Phase 2 Program for Medium-Duty and Heavy-Duty Engines and Vehicles
RMDP/SCP
Los Angeles County, California

Item	ES	NRSP	VCC	Total
CO_2e Emissions Associated with Traffic (Unmitigated)[1], MT	26,753	360,739	23,363	410,855
% of Running CO_2 Emissions from NHTSA Vehicle Categories (weighted)[3]	29%	29%	29%	29%
Approx CO_2e Emissions Associated with Medium or Heavy-Duty Fleet	7,771	104,779	6,786	119,336
% of Running CO_2 Emissions from NHTSA Vehicle Categories for MY 2021-2031 (weighted)[4]	59%	59%	59%	59%
Approx CO_2e Emissions Associated with Medium or Heavy-Duty Fleet MY 2021-2031	4,585	61,819	4,004	70,407
% Reduction assumed in 2021-2031 GHG for Medium/Heavy Duty[5]	10%	10%	10%	10%
Total CO_2e Reduction	**458**	**6,182**	**400**	**7,041**

Notes:

[1] Unmitigated emissions associated with Project related traffic movement for CY 2030 (see Table 2-18a).

[2] Percentage of NHTSA fleet mix from the total CalEEMod® EMFAC2014 fleet mix. Vehicle classes applicable to NHTSA include -- LHD1, LHD2, MHD, HHD, OBUS, UBUS, SBUS, MH. NHTSA applicable vehicle classes are obtained from https://www3.epa.gov/otaq/climate/documents/420r16900.pdf. Accessed: September, 2016. Note that, Motor Homes (MH) are recognized as a part of NHTSA reg.

[3] Percentage (weighted) of CO_2 emissions of NHTSA applicable fleet mix from total fleet mix.

[4] EMFAC2014 model run for CY 2030, shows that about 58% of the weighted CO_2 emissions for the medium or heavy-duty fleet are associated with EPA-NHTSA vehicle classes for MY 2021-2031.

[5] Based on US EPA and NHTSA Phase 2 program documentation, Phase 2 achieves 10 percent more GHG reductions. Available at: https://www3.epa.gov/otaq/climate/documents/420f16044.pdf. Accessed: September, 2016.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
CY - calendar year
EMFAC - California Air Resources Board Emissions Factor Model
EPA - Environmental Protection Agency
ES - Entrada South
GHG - greenhouse gases
HHD - heavy-heavy duty
LHD - light-heavy duty
MHD - medium-heavy duty
MH - motor home
MT - metric tonnes
MY - model year
NHTSA - National Highway Traffic Safety Administration
NRSP - Newhall Ranch Specific Plan
OBUS - other buses
SBUS - school buses
UBUS - urban buses
VCC - Valencia Commerce Center

Table 3-1. Summary of Assumptions
RMDP/SCP
Los Angeles County, California

	Unmitigated Project	Mitigated Project
Electricity CO_2 intensity factor	•SCE intensity factor adjusted for 50% RPS.	
Mobile:		
Number of trips generated	•Trip rates, trip length, and internal trip capture provided by Stantec for each individual land use and/or trip type.	
Vehicle emission factor	• EMFAC2014 • HHD/OBUS idling factors based on EMFAC2011 because not available in EMFAC2014. • Includes reduction from Pavley regulations and Advanced Clean Cars program. • Exclude reduction from LCFS regulations. • Reduction due to NHTSA Phase 2 GHG regulations applied	
VMT Reductions Due to Mitigation Measures	None	• 14.9% reduction in VMT per year due to TDM measures.
GHG Reductions Due to Mitigation Measures	None	• Residential EV chargers and vehicle subsidy • Commercial development area and off-site EV chargers • Traffic signal synchronization. • Electric school bus program • Electric transit bus subsidy
Energy use	• Building energy intensity based on Title 24 - 2016. • Recreational swimming pool is heated by natural gas.	• Building energy intensity based on Title 24 - 2016. • Recreational swimming pool is heated by solar power or equivalent. • Zero Net Energy (ZNE) for residential and commercial land uses.
Water use	• Scale from California Department of Fish & Wildlife, Final Joint EIS/EIR for the RMDP and SCP Project, Climate Change Technical Addendum (October 2009), Tables 3-E-2-NRSP, 3-E-2-Entrada, and 3-E-2-VCC, based on the changes in land use sqft and dwelling units. • 20 Percent Reduction for Indoor Water Consumption per CalGreen Building Standards (Title 24, Part 11) • Potable/non-potable and indoor/outdoor water split based on Final Joint EIS/EIR assumptions. • Conservatively estimate emissions associated with full capacity of Newhall Ranch Water Reclamation Plant	

Table 3-1. Summary of Assumptions
RMDP/SCP
Los Angeles County, California

	Unmitigated Project	Mitigated Project
Solid Waste generation	• Based on Santa Clarita's 2012 CalRecycle disposal rates for residents and employees. • 75% diversion rate based on State's goal.	
Vegetation	• Based on Draft Joint EIS/EIR for the RMDP and SCP Project, Climate Change Technical Report (February 2009), Table 4-2-B.	• Based on Draft Joint EIS/EIR for the RMDP and SCP Project, Climate Change Technical Report (February 2009), Table 4-2-B. • Change in GHG emissions are offset.
Construction	• Total level of construction equipment activity consistent with Final Joint EIS/EIR for the RMDP and SCP Project, Climate Change Technical Addendum (October 2009).	• Total level of construction equipment activity consistent with Final Joint EIS/EIR for the RMDP and SCP Project, Climate Change Technical Addendum (October 2009). • Construction GHG emissions are offset.
Others	None	• Off-site EV chargers • Building retrofit program • GHG Reduction Plan

Abbreviations:

CO_2 - carbon dioxide
EMFAC - California Air Resources Board Emissions Factor Model
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
EV - electric vehicle
HHD - heavy-heavy duty
GHG - greenhouse gases
LCFS - Low Carbon Fuel Standard
NHTSA - National Highway Traffic Safety Administration
NRSP - Newhall Ranch Specific Plan
OBUS - other buses
RPS - Renewable Portfolio Standard
SCE - Southern California Edison
sqft - square feet
TDM - Traffic Demand Management
VCC - Valencia Commerce Center
VMT - vehicle miles travelled

Table 3-2. Summary of Existing and Unmitigated Project Emissions
RMDP/SCP
Los Angeles County, California

Emissions Activity	Emissions ($MT\ CO_2e$ / year)		References[1]
	Existing	Unmitigated	
Mobile	152	403,814	Tables ES-1 and ES-2
Electricity	--	39,393	Tables 2-14a and 2-14b
Natural Gas	--	43,386	Tables 2-14a and 2-14b
Area Sources	7,883	367	Tables ES-1 and ES-2
Water Consumption and Wastewater Treatment	2,987	8,190	Tables ES-1 and ES-2
Solid Waste Generation	--	23,179	Table ES-2
Vegetation Removal	--	1,335	Table ES-2
Construction	--	6,437	Table ES-2
Total Annual Emissions	11,021	526,103	Tables ES-1 and ES-2

[1] Reference identifies where these values were first summarized. Additional background regarding these emission estimates are included in the tables within this Technical Report.

Abbreviations:
CO_2e - carbon dioxide equivalents
MT - metric tonnes

Table 4-1a. Residential GHG Emissions based on 2019 Title 24 Building Features
RMDP/SCP
Los Angeles County, California

CalEEMod® Land Use	ConSol Land Use Subtype (assigned)[1]	Number of Dwelling Units[2]	2016 Title 24					2019 Title 24 Building Features (Approximated)				
			Electricity[3]	Natural Gas[3]	Electricity GHG Emissions	Natural Gas GHG Emissions	Total GHG Emissions[4]	Total Electricity[3]	Total Natural Gas[3]	Electricity GHG Emissions	Natural Gas GHG Emissions	Total GHG Emissions[5]
		DU	kWh / DU / yr	kBTU / DU / yr	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr	kWh / DU / yr	kBTU / DU / yr	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr
Single Family Housing	Single Family	8,744	5,890	22,000	8,808	10,326	19,135	6,878	8,900	10,286	4,178	14,463
Condo/Townhouse	Multifamily	12,498	3,662	9,900	7,828	6,642	14,469	4,300	1,588	9,191	1,065	10,257
Total		**21,242**	**-**	**-**	**16,636**	**16,968**	**33,604**	**11,178**	**10,488**	**19,477**	**5,243**	**24,720**

Notes:
[1] CalEEMod® land use types were mapped to the most representative land use type modeled by ConSol. ConSol modeling is shown in Appendix C.
[2] Number of dwelling units includes single family and multifamily homes from NRSP and ES. VCC does not include residential land uses.
[3] Total electricity is the sum of regulated and unregulated electricity loads. Total natural gas is the sum of regulated and unregulated natural gas loads. Values are shown in table 2-13a and Appendix C.
[4] Total GHG emissions are also shown in Table 2-14b.
[5] Total GHG emissions for the 2019 Title 24 Building Features home are the emissions remaining after efficient building before the application of solar PV. GHG reductions from solar PV are shown in Table 4-

Abbreviations:
CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
DU - dwelling unit
ES - Entrada South
GHG - greenhouse gases
kBTU - 1,000 British thermal units
kWh - kilowatt-hour
MT - metric tonnes
PV - photovoltaic
NRSP - Newhall Ranch Specific Plan
VCC - Valencia Commerce Center
yr - year

References:
ConSol, *Newhall Land & Farming Company Residential and Commercial Building Analysis* (2016)

Table 4-1b. GHG Emissions Reduction due to Residential 2019 Title 24 Building Features
RMDP/SCP
Los Angeles County, California

CalEEMod® Land Use	ConSol Land Use Subtype (assigned)[1]	Number of Dwelling Units[2]	GHG Reduction from Electricity[3]	GHG Reduction from Natural Gas	GHG Reduction from All Building Features
		DU	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr
Single Family Housing	Single Family	8,744	-1,478	6,149	4,671
Condo/Townhouse	Multifamily	12,498	-1,364	5,577	4,213
Total		**21,242**	**-2,841**	**11,726**	**8,884**

Notes:

[1] CalEEMod® land use types were mapped to the most representative land use type modeled by ConSol. ConSol modeling is shown in Appendix C.

[2] Number of dwelling units includes single family and multifamily homes from NRSP and ES. VCC does not include residential land uses.

[3] The negative numbers represent an increase in electricity emissions between 2016 Title 24 and 2019 Title 24 Building Features.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CO_2e - carbon dioxide equivalents
DU - dwelling unit
ES - Entrada South
GHG - greenhouse gases
MT - metric tonnes
NRSP - Newhall Ranch Specific Plan
VCC - Valencia Commerce Center
yr - year

References:

ConSol, *Newhall Land & Farming Company Residential and Commercial Building Analysis* (2016)

Table 4-1c. GHG Emissions Reduction due to Residential ZNE Building Solar PV
RMDP/SCP
Los Angeles County, California

Land Use	Rated Solar PV Production[1]	Number of Dwelling Units[2]	Number of Solar PV Systems[3]	Annual Renewable Energy Generated[4]	Total Annual Renewable Energy Generated	Total Annual Solar PV CO_2e Reduction[5]
	kW / system	DU	system	kWh / yr / system	kWh / yr	MT CO_2e / yr
Single Family	5.0	8,744	8,744	8,167	71,412,248	12,213
Multifamily	21.9	12,498	1,562	35,772	55,884,807	9,558
Total		**21,242**	**10,306**	**43,939**	**127,297,055**	**21,771**

Notes:

[1] Based on ConSol study to achieve CEC definition of ZNE for residences (Appendix C). For Single Family, a 2-story 2,700 sqft home constructed to approximate 2019 Title 24 standards, would need a 5.0 kW solar power system to reach Zero Net Energy in Climate Zone 9, Santa Clarita. For Multifamily, a 6,960 sqft, 2-story multi-family, 8-plex would need a 21.9 kW system.

[2] Number of dwelling units includes single family and multifamily homes from NRSP and ES. VCC does not include residential land uses.

[3] Total number of PV systems assumes 8,744 single family homes and 1,562 multifamily homes (8 units each) each contain PV systems.

[4] Annual renewable energy generated per unit from Appendix C.

[5] Annual Photovoltaic GHG Reduction is based on the CO_2e emission factor for SCE in 2030, assuming 50% RPS. Note this reduction does not account for potential improvements in emission factors due to shifting of loads from peak to off-peak hours.

Abbreviations:

CEC - California Energy Commission
CO_2e - carbon dioxide equivalents
DU - dwelling unit
ES - Entrada South
GHG - greenhouse gases
MT - metric tonnes
kW - kilowatt
kWh - kilowatt-hour
NRSP - Newhall Ranch Specific Plan
PV - photovoltaic
RPS - Renewable Portfolio Standards
SCE - Southern California Edison
sqft - square feet
VCC - Valencia Commerce Center
yr - year
ZNE - Zero Net Energy

References:

CEC. Integrated Energy Policy Report. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf. Accessed: September 2016.

ConSol, *Newhall Land & Farming Company Residential and Commercial Building Analysis* (2016)

Table 4-1d. Total GHG Emissions Reduction due to Residential ZNE Buildings and Solar PV
RMDP/SCP
Los Angeles County, California

GHG Reduction from 2016 Title 24 to 2019 Title 24 Building Features (Approximated) Residences[1,3] (Electricity)	GHG Reduction from 2016 Title 24 to 2019 Title 24 Building Features (Approximated) Residences[1] (Natural Gas)	GHG Reduction from Solar PV[2] (Electricity)	Total GHG Reduction
MT CO_2e / yr			
-2,841	11,726	21,771	**30,656**

Notes:

[1] Reduction calculation shown in Tables 4-1a and 4-1b.

[2] Reduction calculation shown in Table 4-1c.

[3] The negative numbers represent an increase in electricity emissions between 2016 Title 24 and 2019 Title 24 Building Features.

Abbreviations:

CO_2e - carbon dioxide equivalents
GHG - greenhouse gas
MT - metric tonnes
PV - photovoltaic
yr - year
ZNE - Zero Net Energy

Table 4-2a. Non-Residential Energy Usage based on 2019 Title 24 Building Features
RMDP/SCP
Los Angeles County, California

Area	Project Assumption	CalEEMod® Land Use Subtype	ConSol Land Use Type (assigned)[1,2]	Total Size	Total Approximate Energy Use Rates					
					2016 Electricity[3]	2016 Natural Gas[3]	Reduction to 2019 Electricity[4]	Reduction to 2019 Natural Gas[4]	2019 Electricity	2019 Natural Gas
				TSF	kWh/SF/yr	kBTU/SF/yr	%	%	kWh/SF/yr	kBTU/SF/yr
ES	Elementary/Middle School	Elementary School	Office	60	6.18	9.39	12%	57%	5.41	4.00
	Commercial Office	General Office Building	Office	63	13.41	9.43	12%	57%	11.74	4.02
	Recreational Center	Health Club	Industrial	7	9.46	19.27	7%	-23%	8.82	23.66
	Hotel	Hotel	Office	200	7.84	21.58	12%	57%	6.87	9.19
	Commercial Center	Regional Shopping Center	Retail	188	11.89	1.32	15%	-3%	10.16	1.36
NRSP	Elementary/Middle School	Elementary School	Office	358	6.18	9.39	12%	57%	5.41	4.00
	Fire Station	General Light Industry	Industrial	33	9.46	19.27	7%	-23%	8.82	23.66
	Commercial Office	General Office Building	Office	1,023	13.41	9.43	12%	57%	11.74	4.02
	Recreational Center	Health Club	Industrial	43	9.46	19.27	7%	-23%	8.82	23.66
	High School	High School	Office	142	6.18	9.39	12%	57%	5.41	4.00
	Hotel	Hotel	Office	100	7.84	21.58	12%	57%	6.87	9.19
	Industrial Park	Industrial Park	Industrial	756	11.41	11.20	7%	-23%	10.64	13.75
	Library	Library	Industrial	36	9.46	19.27	7%	-23%	8.82	23.66
	Business Park	Office Park	Office	324	14.67	8.87	12%	57%	12.85	3.78
	Industrial Park	Regional Shopping Center	Retail	3,247	11.89	1.32	15%	-3%	10.16	1.36
VCC	Business Park	Office Park	Office	1,100	14.67	8.87	12%	57%	12.85	3.78
	Industrial Park	Industrial Park	Industrial	2,300	11.41	11.20	7%	-23%	10.64	13.75
Total				9,979	-	-	-	-	-	-

Notes:
[1] ConSol land use prototypes include a 100,000 square foot, 4-story office building; a 75,000 square foot, one-story light industrial building (20,000 square feet conditioned); and a 40,000 square foot, one-story suburban retail building.
[2] CalEEMod® land use types were mapped to the most representative land use type from ConSol based on the similarity of emission factors in CalEEMod®.
[3] Derivations for 2016 Title 24 energy use rates are presented in Table 2-13b.
[4] Energy use reductions from 2016 Title 24 to 2019 Title 24 based on ConSol building energy modeling.

Abbreviations:
CalEEMod® - CALifornia Emissions Estimator MODel
CEC - California Energy Commission
ES - Entrada South
kBTU- 1,000 British thermal units
kWh - kilowatt-hour
NRSP - Newhall Ranch Specific Plan
SF - square feet
TSF- thousand square feet
VCC - Valencia Commerce Center
yr - year

References:
CEC. 2016 Building Energy Efficiency Standards Approved Computer Compliance Programs. Available at: http://www.energy.ca.gov/title24/2016standards/2016_computer_prog_list.html. Accessed: September 2016.
CEC. Integrated Energy Policy Report. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf. Accessed: September 2016.

Table 4-2b. GHG Emissions Reduction due to Non-Residential 2019 Title 24 Building Features
RMDP/SCP
Los Angeles County, California

Area	Project Assumption	CalEEMod® Land Use Subtype	ConSol Land Use Type (assigned)[1,2]	Total Size	Total Approximate Energy Emissions				GHG Reduction from Electricity	GHG Reduction from Natural Gas	GHG Reduction from 2016 to Approximate 2019 Title 24[3,4]
					2016 Elec	2016 NG	2019 Elec	2019 NG			
				TSF	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr	MT CO_2e / yr
ES	Elementary/Middle School	Elementary School	Office	60	63	30	56	13	8	17	25
	Commercial Office	General Office Building	Office	63	143	32	126	13	18	18	36
	Recreational Center	Health Club	Industrial	7	11	7	10	8	1	-2	-1
	Hotel	Hotel	Office	200	268	232	235	99	33	133	166
	Commercial Center	Regional Shopping Center	Retail	188	381	13	326	14	55	0	55
NRSP	Elementary/Middle School	Elementary School	Office	358	378	180	331	77	47	104	150
	Fire Station	General Light Industry	Industrial	33	54	34	50	42	4	-8	-4
	Commercial Office	General Office Building	Office	1,023	2,346	518	2,055	220	292	297	589
	Recreational Center	Health Club	Industrial	43	70	45	65	55	5	-10	-5
	High School	High School	Office	142	151	72	132	31	19	41	60
	Hotel	Hotel	Office	100	134	116	117	49	17	67	83
	Industrial Park	Industrial Park	Industrial	756	1,475	455	1,376	558	99	-103	-4
	Library	Library	Industrial	36	58	37	54	46	4	-8	-5
	Business Park	Office Park	Office	324	813	154	712	66	101	89	190
	Industrial Park	Regional Shopping Center	Retail	3,247	6,603	230	5,642	238	961	-8	953
VCC	Business Park	Office Park	Office	1,100	2,760	524	2,417	223	343	301	644
	Industrial Park	Industrial Park	Industrial	2,300	4,488	1,383	4,187	1,698	301	-315	-13
Total				**9,979**	**20,197**	**4,061**	**17,890**	**3,449**	**2,306**	**612**	**2,919**

Notes:

[1] ConSol land use prototypes include a 100,000 square foot, 4-story office building; a 75,000 square foot, one-story light industrial building (20,000 square feet conditioned); and a 40,000 square foot, one-story suburban retail building.

[2] CalEEMod® land use types were mapped to the most representative land use type from ConSol based on the similarity of emission factors in CalEEMod®.

[3] Electricity intensity factor for CO_2e is for SCE in 2030, assuming 50% RPS.

[4] Reduction does not account for potential improvements in emission factors due to shifting of loads from peak to off-peak hours.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CEC - California Energy Commission
CO_2e - carbon dioxide equivalents
ES - Entrada South
MT - metric tonnes
NG - natural gas
NRSP - Newhall Ranch Specific Plan
RPS - Renewable Portfolio Standard
SCE - Southern California Edison
TSF- thousand square feet
VCC - Valencia Commerce Center
yr - year

References:

CEC. 2016 Building Energy Efficiency Standards Approved Computer Compliance Programs. Available at: http://www.energy.ca.gov/title24/2016standards/2016_computer_prog_list.html. Accessed: September 2016.

CEC. Integrated Energy Policy Report. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf. Accessed: September 2016.

ConSol, *Newhall Land & Farming Company Residential and Commercial Building Analysis* (2016)

Table 4-2c. GHG Emissions Reduction due to Non-Residential ZNE Building Solar PV
RMDP/SCP
Los Angeles County, California

ConSol Appendix C Analysis: Solar PV Generation Required to Achieve ZNE

ConSol Land Use Type[1]	2019 Title 24 Energy Demand	PV Size	Solar PV Generation Required for ZNE	% of 2019 kWh Required for ZNE
	kWh	kW DC	kWh	%
Office	808,029	536.9	902,871	112%
Industrial	150,882	126.6	199,604	132%
Retail	361,550	299.1	486,764	135%

Area	Project Assumption	CalEEMod® Land Use Subtype	ConSol Land Use Type[1,2]	Total Size	Approximate 2019 Electricity Consumption[3]	% of 2019 kWh Required from Solar PV for ZNE[4]	Solar PV Generation Needed to Achieve ZNE	Annual PV GHG Reduction[5,6]
				TSF	kWh/yr	%	kWh/yr	MT CO_2e/yr
ES	Elementary/Middle School	Elementary School	Office	60	324,721	112%	362,835	62
	Commercial Office	General Office Building	Office	63	733,973	112%	820,122	140
	Recreational Center	Health Club	Industrial	7	58,832	132%	77,829	13
	Hotel	Hotel	Office	200	1,373,148	112%	1,534,320	262
	Commercial Center	Regional Shopping Center	Retail	188	1,905,005	135%	2,564,757	439
NRSP	Elementary/Middle School	Elementary School	Office	358	1,935,334	112%	2,162,493	370
	Fire Station	General Light Industry	Industrial	33	292,100	132%	386,423	66
	Commercial Office	General Office Building	Office	1,023	12,013,666	112%	13,423,764	2,296
	Recreational Center	Health Club	Industrial	43	382,406	132%	505,891	87
	High School	High School	Office	142	770,678	112%	861,135	147
	Hotel	Hotel	Office	100	686,574	112%	767,160	131
	Industrial Park	Industrial Park	Industrial	756	8,046,729	132%	10,645,135	1,821
	Library	Library	Industrial	36	317,691	132%	420,279	72
	Business Park	Office Park	Office	324	4,162,423	112%	4,650,986	795
	Industrial Park	Regional Shopping Center	Retail	3,247	32,989,609	135%	44,414,753	7,596
VCC	Business Park	Office Park	Office	1,100	14,131,685	112%	15,790,384	2,701
	Industrial Park	Industrial Park	Industrial	2,300	24,480,789	132%	32,385,994	5,539
Total				**9,979**	**104,605,362**	-	**131,774,261**	**22,537**

Notes:

[1] ConSol land use prototypes include a 100,000 square foot, 4-story office building; a 75,000 square foot, one-story light industrial building (20,000 square feet conditioned); and a 40,000 square foot, one-story suburban retail building.

[2] CalEEMod® land use types were mapped to the most representative land use type from ConSol based on the similarity of emission factors in CalEEMod®.

[3] Approximate 2019 electricity consumption based on percent reductions in electricity use from 2016 Title 24 to 2019 Title 24 derived from ConSol building energy modeling, as shown in table 4-2a.

[4] Percentages of baseline electricity required to achieve CEC definition of ZNE are approximate because they are based on assumed building features and reflect time-dependant valuation of energy. Based on ConSol's building-specific energy use and solar system-specific assumptions.

[5] Electricity intensity factor for CO_2e is for SCE in 2030, assuming 50% RPS.

[6] Reduction does not account for potential improvements in emission factors due to shifting of loads from peak to off-peak hours.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CEC - California Energy Commission
CO_2e - carbon dioxide equivalents
ES - Entrada South
GHG - greenhouse gases
kWh - kilowatt-hour
MT - metric tonnes
NRSP - Newhall Ranch Specific Plan
PV - photovoltaic
RPS - Renewable Portfolio Standards
SCE - Southern California Edison
TSF - thousand square feet
VCC - Valencia Commerce Center
yr - year
ZNE - Zero Net Energy

References:

CEC. 2016 Building Energy Efficiency Standards Approved Computer Compliance Programs. Available at: http://www.energy.ca.gov/title24/2016standards/2016_computer_prog_list.html. Accessed: September 2016.

CEC. Integrated Energy Policy Report. 2011. Available at: http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf. Accessed: September 2016.

ConSol, *Newhall Land & Farming Company Residential and Commercial Building Analysis* (2016).

Table 4-2d. Total GHG Emissions Reduction due to Non-Residential ZNE Building Features and Solar PV
RMDP/SCP
Los Angeles County, California

Reduction from 2016 Title 24 to Approximate 2019 Title 24[1] (Electricity)	Reduction from 2016 Title 24 to Approximate 2019 Title 24[1] (Natural Gas)	Reduction from Solar PV[2] (Electricity)	Total Reduction
MT CO_2e / yr			
2,306	612	22,537	**25,456**

Notes:
[1] Reduction calculation shown in Tables 4-2a and 4-2b.
[2] Reduction calculation shown in Table 4-2c.

Abbreviations:
CO_2e - carbon dioxide equivalents
GHG - greenhouse gas
MT - metric tonnes
PV - photovoltaic
yr - year
ZNE - Zero Net Energy

Table 4-3. GHG Emissions Reduction for Residential Electric Vehicles
RMDP/SCP
Los Angeles County, California

Estimating GHG Emissions Reduction from Replacement of Gasoline Vehicle with Electric Vehicle		
SCE Electricity Emission Factor[1]	0.17	(MT CO_2e/MWh)
Fuel Economy of Electric Vehicle[2]	0.25	(kWh/mile)
Electric Vehicle GHG Emissions	42.6	(gms/mile)
GHG Emissions for the Residential Miles Traveled as Estimated by CalEEMod® (including NHTSA Phase 2 reduction)[3]	324.9	(gms CO_2/mile)
GHG Emissions Reduction from Additional Electric Vehicles, per mile	282.3	(gms/mile)
Estimating Project Residential-Related Traffic GHG Emissions		
Residential Average Yearly Traffic, before TDMs[4]	447,218,315	(miles/year)
Residential Average Yearly Traffic, After TDMs[5]	380,582,786	(miles/year)
Percent of Residential Miles Driven in Electric Vehicles due to This Measure[6]	50%	
Residential VMT that is Displaced by EVs due to This Measure	190,291,393	(miles/year)
Estimated Benefit from Residential EV Chargers and Vehicle Subsidy		
GHG Emissions Reduction from Residential Electric Vehicles[7]	53,724	(MT CO_2e/year)
Total Project Traffic GHG Emissions, After TDMs and Residential EV Mitigation[8]	289,921	(MT CO_2e/year)

Notes:

[1] CO_2 intensity factor for SCE accounts for the 50% Renewable Portfolio Standard consistent with assumptions for the 2030 emissions inventories. This analysis only uses CO_2 and CH_4 emissions, and N_2O is not included.

[2] US Department of Energy, 2013. Benefits and Considerations of Electricity as a Vehicle Fuel. Available at: http://www.afdc.energy.gov/fuels/electricity_benefits.html. Accessed: September 2016.

[3] The emissions factor (324.9 gms/mile) is consistent with the CalEEMod® input, and includes default reductions for the ACC Program and Pavley Standards. The emissions factor also is consistent with EMFAC2014's running exhaust emission rate for CO_2 for vehicles in Los Angeles County, as aggregated for all models and speeds, and averaged over all seasons for 2030, except includes the emissions reduction due to NHTSA Phase 2 regulations since this benefit is estimated post-CalEEMod®. The emissions inventory includes a small amount of CH_4 and N_2O, so when they are excluded from the reductions, it is a conservative approach. To ensure that the Project mitigation's emissions reduction benefit does not take credit for EVs that EMFAC2014 already forecasts will be part of the vehicle fleet, the emissions factor and emissions inventory includes the existing EVs. CalEEMod® conservatively includes medium- and heavy-duty vehicle emissions factors proportional to EMFAC2014's default fleet mix when calculating mobile emissions for all land use types.

Calculation methodology from EMFAC2014 output: Weighted average running emissions CO_2 (g/mi) = % of mi by vehicle type x CO_2 running EF (g/mi)

1. EF in CalEEMod®: 330.5 g/mi
2. EF including NHTSA Phase 2, used in calculation: 324.9 g/mi
3. EF if no EVs were included in CalEEMod®, including NHTSA Phase 2: 347.3 g/mi

Available at: http://www.arb.ca.gov/emfac/. Accessed: September 2016.

[4] From CalEEMod® modeling, as shown in Table 2-18a.

[5] The 14.9% reduction in VMT due to TDMs (shown in Table 4-5) is applied prior to taking credit for the residential EV mitigation measure.

[6] This assumption is described in more detail in the Appendix H.

[7] Calculated by multiplying the GHG reduction per mile from EVs by the miles displaced by EVs. Assuming that 50% of the 21,242 dwelling units use a subsidy to purchase an EV, the reduction per subsidy equals the total GHG emissions reduction divided by the number of subsidies = 53,735 MT / (21,242 x 50%) = 5.06 MT CO_2e per year per subsidy.

[8] Remaining mobile emissions after TDMs and Residential EV Mitigation.

Abbreviations:

ACC - Advanced Clean Cars
CalEEMod® - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EF - emission factor
EMFAC - California Air Resources Board Emissions Factor Model
EV - electric vehicle
g/gms - grams
GHG - greenhouse gases
kWh - kilowatt-hour
mi - mile
MT - metric tonnes
MWh - megawatt-hour
N_2O - nitrous oxide
NHTSA - National Highway Traffic Safety Administration
SCE - Southern California Edison
TDM - Transportation Demand Management
VMT - vehicle miles traveled

Table 4-4. GHG Emissions Reduction for Commercial Development Area Electric Vehicle Charging Stations
RMDP/SCP
Los Angeles County, California

Estimating GHG Emissions Reduction from Replacement of Gasoline Vehicle with Electric Vehicle		
SCE Electricity Emission Factor[1]	0.17	(MT CO_2e/MWh)
Fuel Economy of Electric Vehicle[2]	0.25	(kWh/mile)
Gasoline/Diesel CO_2e Emission while Running[3]	257	(gms/mile)
Annual VMT Reduction per Parking Spot[4]	91,250	(miles/charging station/year)
Number of On-Site Commercial Parking Spots Provided Chargers[5]	2,000	
Annual VMT Reduction All Stations (Based on Charge)	182,500,000	(miles/year)
Estimated Benefit from Installing Electric Vehicle Charging Stations in Commercial Development Areas		
GHG Emissions of Gasoline/Diesel Vehicle[6]	46,875	(MT CO_2e/year)
GHG Emissions of Electric Vehicle[7]	7,766	(MT CO_2e/year)
GHG Emissions Reduction[8]	39,109	(MT CO_2e/year)
GHG Reduction per Parking Space with Charging per Year	20	(MT CO2e/year)
Total Project Traffic GHG Emissions, After TDMs and Residential and Commercial EV Mitigation[9]	250,812	(MT CO_2e/year)
Number of Off-Site Parking Spots Provided Chargers[5]	2,036	
GHG Emissions Reduction from Off-Site Parking Spots[10]	39,813	(MT CO_2e/year)

Notes:

[1] CO_2e weighted intensity factor for SCE accounts for CO_2 and CH_4 emissions rates consistent with 50% Renewable Portfolio Standard.

[2] US Department of Energy, 2013. Benefits and Considerations of Electricity as a Vehicle Fuel. Available at: http://www.afdc.energy.gov/fuels/electricity_benefits.html. Accessed: September 2016.

[3] CARB, 2015. EMFAC2014, running exhaust emission rate for CO_2 and CH_4 for light duty gasoline- and diesel-powered vehicles in Los Angeles, aggregated for all models and speeds, averaged over all seasons for 2030. Emission rate includes reductions for Advanced Clean Cars (ACC) and Pavley. Available at: http://www.arb.ca.gov/emfac/. Accessed: September 2016.

[4] Annual VMT reduction estimated based on an estimate of ten hours of charge time for a Level 2 charging station that charges at a rate of 25 miles of driving range per hour.

[5] Number of charging stations based on project commitment. This assumes 2,000 parking spaces will be serviced by a charging station (equivalent to 7.5 percent of required commercial parking spaces). The off-site mitigation measure GCC-12 assumes 2,036 parking spaces will have a charging station, based on a ratio of one parking space serviced by an electric vehicle charging station per 30 residential dwelling units and one parking space serviced by an electric vehicle charging station per 7,000 commercial square feet.

[6] GHG emissions calculated using annual VMT reduction at all stations and CO_2 and CH_4 emission rate. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

[7] GHG emissions calculated using annual VMT reduction at all stations, fuel economy of electric vehicles, along with SCE electricity CO_2e emission factor. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

[8] GHG emissions reduction is a difference of GHG emissions of gasoline vehicles and GHG emissions of electric vehicles. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

[9] Remaining mobile emissions after TDMs and Residential and Commercial EV Mitigation. TDM calculations are shown in Table 4-5.

[10] Reduction is the number of off-site parking spots multiplied by the GHG reduction per parking spot.

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - California Air Resources Board Emissions Factor Model
EV - electric vehicle
GHG - greenhouse gases
gms - grams
kWh - kilowatt-hour
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
TDM - Transportation Demand Management
VMT - vehicle miles traveled

Table 4-5. GHG Emissions Reductions due to Transportation Demand Management
RMDP/SCP
Los Angeles County, California

Item	Value	Units
Total VMT per Year[1]	1,211,961,903	(miles/yr)
Total VMT Reduction due to TDMs[2]	14.9%	
Total VMT per Year after TDMs	1,031,379,579	(miles/yr)
Total Mobile GHG Emissions, 2030 Unmitigated	410,855	(MT CO_2e/yr)
Total GHG Reduction due to NHTSA Regulatory Compliance[3]	7,041	(MT CO_2e/yr)
Total Mobile GHG Emissions after NHTSA Reduction, 2030 Unmitigated	403,814	(MT CO_2e/yr)
Total GHG Reduction due to TDMs[4]	14.9%	
Reduction in Mobile GHG Emissions due to TDMs, 2030 Unmitigated	60,168	(MT CO_2e/yr)
Remaining Mobile GHG Emissions after TDMs, 2030	343,646	(MT CO_2e/yr)

Notes:

[1] Total VMT based on the trip rates and trip lengths for Entrada South, Valencia Commerce Center, and Newhall Ranch Specific Plan areas. Trips were modeled using CalEEMod® version 2013.2.2.

[2] Reduction due to TDMs based on Fehr & Peers, *RMDP/SCP Project: Transportation Demand Management Program* (2016).

[3] Mobile GHG reductions due to Phase 2 NHTSA regulations are not incorporated into EMFAC2014. These reductions are calculated in Table 2-18b and apply to both the 2030 unmitigated and 2030 mitigated emissions inventories.

[4] GHG emissions are directly proportional to VMT using CalEEMod® methodology. The NEV measure results in a 2.54% reduction in mobile VMT, which translates to a 2.54% reduction in mobile GHGs: 403,886 MT CO_2e/year x 2.54% = 10,259 MT CO_2e/year reduction due to NEVs. Assuming that 20% of the 21,242 dwelling units use a subsidy to purchase an NEV, the number of NEVs purchased equals (21,242 x 20%) = 4,248 NEVs. The GHG reduction per subsidy equals the total GHG emissions reduction divided by the number of subsidies = 10,259 MT CO_2e / 4,248 NEVs = 2.4 MT CO_2e per year per subsidy.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
EMFAC - California Air Resources Board Emissions Factor Model
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
NEV - neigborhood electric vehicles
NHTSA - National Highway Traffic Safety Administration
TDM - Transportation Demand Management
VMT - vehicle miles traveled
yr - year

Table 4-6. Mobile GHG Reductions due to Traffic Signal Synchronization
RMDP/SCP
Los Angeles County, California

I. Percent Reduction in Mobile GHG Emissions Due to Traffic Signal Synchronization

Traffic Assumptions[1]					
Total RMDP/SCP ADT	336,051				trips/day
Total RMDP/SCP VMT	3,533,618				mi/day
Road Segment-Specific Traffic Assumptions[2]	Commerce Center	Magic Mountain	Chiquito	SR-126	
Average Running Speed	45	45	45	60	mph
Average Daily Trips (ADT)	41,700	47,000	35,300	66,600	trips/day
Road Segment Length	2.3	3.8	4.6	5.6	mi/trip
Road Segment-Specific Daily VMT[3]	95,910	178,600	162,380	372,960	mi/day
CO_2 Emission Factors[4]					
Congested CO_2 Emission Factor	323	323	323	332	g CO_2/mi
Free-flow CO_2 Emission Factor	259	259	259	306	g CO_2/mi
CO_2 Emissions[4]					
"Baseline" CO_2 Emissions (based on congested EF)	30.98	57.69	52.45	123.82	MT CO_2/day
Post-Synchronization CO_2 Emissions (based on free-flow EF)	24.84	46.26	42.06	114.13	MT CO_2/day
Road Segment-Specific Percent Reduction in Mobile GHG Emissions due to Traffic Signal Synchronization[5]	0.54%	1.00%	0.91%	0.83%	%
Overall Project Percent Reduction in Mobile GHG Emissions due to Traffic Signal Synchronization[6]	**3.28%**				**%**

II. Mobile GHG Emissions after Traffic Signal Synchronization

Total Mobile GHG Emissions, after TDMs, Residential and Commercial EV, and Electric School Bus Mitigation Measures	250,655	MT CO_2e/yr
Reduction in Mobile GHG Emissions due to Traffic Signal Synchronization	8,212	MT CO_2e/yr
Remaining Mobile GHG Emissions after Mitigation	**242,443**	**MT CO_2e/yr**

Notes:

[1] Total RMDP/SCP ADT and VMT was based on the SCVCTM Model as provided by Stantec. This ADT and VMT is calculated in Tables 2-17a through 2-17e. This represents the VMT and trips before the weekend trip rate adjustment in CalEEMod®.

[2] This calculation was provided by Stantec as shown in Appendix I. Four road segments in RMDP/SCP are proposed for traffic signal synchronization: Commerce Center from north of Franklin to Magic Mountain, Magic Mountain from Long Canyon to I-5 northbound ramps, Chiquito Canyon/Long Canyon/Valencia, and SR-126 from County Line to I-5 northbound ramps.

[3] Average running speed was assumed. Segment VMT is the product of ADT and road segment length.

[4] Congested and Free-flow emission factors are based on the CAPCOA RPT-2 Fact Sheet, which provides CO_2 emissions per mile based on vehicle speed. CO_2 emissions were calculated by multiplying the emission factor by the respective road segment daily VMT.

[5] The reduction due to traffic synchronization for each road segment is found using the following equation:

$$\%\ CO_2\ \text{Reduction} = \left(1 - \frac{\text{Project } CO_{2(\text{free-flow})}}{\text{Project } CO_{2(\text{congested})}}\right) \times \frac{\text{Road Segment-Specific Daily VMT}}{\text{Total RMDP/SCP VMT}} \times 100$$

[6] The calculated percent reduction is normalized to the total traffic emissions to facilitate the calculation relative to the Project GHG emissions inventory. The CAPCOA RPT-2 emission factors do not account for the detail that the Project emissions inventory does. For example, the Project emissions inventory is based on EMFAC2014 and CalEEMod® accounts for weekend vs. weekday variations. By normalizing this reduction due to the traffic signal synchronization to the Project VMT using the RPT-2 emission factors, the calculation can account for the differences between the Project emissions inventory relative to the RPT-2 methodology.

Abbreviations:

ADT - Average Daily Trips
CalEEMod® - CALifornia Emissions Estimator MODel
CAPCOA - California Air Pollution Control Officers Association
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - California Air Resources Board Emissions Factor Model
EF - emission factor
EV - electric vehicle
g - gram
GHG - greenhouse gases
I-5 - Interstate 5
mi - mile
MT - metric tonnes
mph - miles per hour
SCVCTM - Santa Clarita Valley Consolidated Traffic Model
SR-126 - State Route 126
TDM - Transportation Demand Management
VMT - vehicle miles traveled
yr - year

References:

CAPCOA, 2010. Available at: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf. Accessed: September, 2016.
Stantec, *Newhall Ranch RMDP/SCP – GHG Reductions from Traffic Signal Coordination* (2016).

Table 4-7. GHG Emissions Reduction due to Replacement of CNG School Buses with Electric School Buses
RMDP/SCP
Los Angeles County, California

Assumptions		
SCE Electricity Emission Factor[1]	0.17	(MT CO_2e/MWh)
Fuel Economy of Electric Bus[2]	1.8	(kWh/mile)
CNG School Bus CO_2e Emission while Running[3]	938	(gms/mile)
Annual Average School Bus VMT[4]	13,780	(VMT/year)
Number of Buses[5]	18	buses
Estimated Benefit from Replacing CNG School Buses with Electric Buses		
GHG Emissions of CNG Bus[6]	233	(MT CO_2e/year)
GHG Emissions of Electric Bus[7]	75	(MT CO_2e/year)
GHG Emissions Reduction[8]	157	(MT CO_2e/year)
Total Project Traffic GHG Emissions, After TDMs, Residential and Commercial EV Mitigation, and Electric School Bus Program[9]	250,655	(MT CO_2e/year)

Notes:

[1] CO_2e weighted intensity factor for SCE accounts for CO_2 and CH_4 emissions rates consistent with the 50% Renewable Portfolio Standard.

[2] Average of BYD and Proterra fuel economy found on their respective websites. Proterra. Available at: http://www.proterra.com/product-tech/product-portfolio/. Accessed: September 2016. BYD. Available at: http://byd.com/na/ebus/ebus.html. Accessed: September 2016.

[3] CARB, 2015. EMFAC2014 2030 running exhaust emission rate for CO_2e (accounts for CO_2 and CH_4) for diesel school buses in Los Angeles County (1,265 gms/mile), along with the ratio of EMFAC2014 2030 emission rates for diesel urban buses (2,603 gms/mile) to CNG urban buses (1,929 gms/mile), were used to calculate the CNG school bus emission rate. Emission rates include reductions Advanced Clean Cars (ACC) and Pavley and are aggregated for all models and speeds, averaged over all seasons for 2030. Available at: http://www.arb.ca.gov/emfac/. Accessed: September 2016.

[4] CARB, 2015. EMFAC2014 2030 annual diesel school bus VMT in Los Angeles County, aggregated for all models and speeds, averaged over all seasons for 2030. Accessed: September 2016. Assumed CNG bus VMT should be no different from diesel bus VMT.

[5] Number of buses based on Project specific estimate.

[6] GHG emissions calculated using annual VMT, number of buses, and CO_2 and CH_4 emission rate. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

[7] GHG emissions calculated using annual VMT, fuel economy and number of electric buses along with SCE electricity CO_2e emission factor. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

[8] GHG emissions reduction is a difference of GHG emissions of CNG buses and GHG emissions of electric buses. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

[9] Remaining mobile emissions after TDMs, Residential and Commercial EV Mitigation, and EV school bus program.

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CNG - compressed natural gas
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - California Air Resources Board Emissions Factor Model
EV - electric vehicle
GHG - greenhouse gases
gms - grams
kWh - kilowatt-hour
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
TDM - Transportation Demand Management
VMT - vehicle miles traveled

Table 4-8. GHG Emissions Reduction due to Replacement of CNG Transit Buses with Electric Transit Buses
RMDP/SCP
Los Angeles County, California

Assumptions		
SCE Electricity Emission Factor[1]	0.17	(MT CO_2e/MWh)
Fuel Economy of Electric Bus[2]	1.8	(kWh/mile)
Urban CNG bus CO_2e Emission while Running[3]	1929	(gms/mile)
Annual Average Transit Bus VMT[4]	38,089	(VMT/year)
Number of Buses[5]	10	buses
Estimated Benefit from Replacing CNG Transit Buses with Electric Buses		
GHG Emissions of 10 CNG Buses[6]	735	(MT CO_2e/year)
GHG Emissions of 10 Electric Buses[7]	116	(MT CO_2e/year)
GHG Emissions Reduction[8]	619	(MT CO_2e/year)

Notes:

1 CO_2e weighted intensity factor for SCE accounts for CO_2 and CH_4 emissions rates consistent with the 50% Renewable Portfolio Standard.

2 Average of BYD and Proterra fuel economy found on their respective websites. Proterra. Available at: http://www.proterra.com/product-tech/product-portfolio/. Accessed September 2016. BYD. Available at: http://byd.com/na/ebus/ebus.html. Accessed September 2016.

3 CARB, 2015. EMFAC 2014, running exhaust emission rate for CO_2 and CH_4 for CNG urban bus fleets in Los Angeles County, aggregated for all models and speeds, averaged over all seasons for 2030. Emission rate includes reductions for Advanced Clean Cars (ACC) and Pavley. Available at: http://www.arb.ca.gov/emfac/. Accessed: September 2016.

4 CARB, 2015. EMFAC2014 2030 annual VMT for CNG urban buses in Los Angeles County, aggregated for all models and speeds, averaged over all seasons for 2030. Accessed: September 2016.

5 Number of buses based on Project specific estimate.

6 GHG emissions calculated using annual VMT, number of buses, and CO_2 and CH_4 emission rate. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

7 GHG emissions calculated using annual VMT, fuel economy and number of electric buses along with SCE electricity CO_2e emission factor. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative.

8 GHG emissions reduction is a difference of GHG emissions of CNG buses and GHG emissions of electric buses. The emissions inventory includes a small amount of nitrous oxide, so when it is excluded from reductions benefits, it is conservative. The reduction per subsidy equals the total GHG emissions reduction divided by the number of transit bus subsidies = 619 MT CO_2e / 10 buses = 61.9 MT CO_2e per year per bus.

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CNG - compressed natural gas
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - California Air Resources Board Emissions Factor Model
EV - electric vehicle
GHG - greenhouse gases
gms - grams
kWh - kilowatt-hour
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
VMT - vehicle miles traveled

Table 4-9. GHG Emissions Reduction due to Building Retrofit Program
RMDP/SCP
Los Angeles County, California

Measure Concept[1]	Incremental or Full Savings Claimed[2]	Annual GHG Savings Attributed to Market Intervention (MT)[3]	Number of Residences Required to Meet 1,000 MT Reduction
HVAC Upstream Incentive (no-cost upgrade) - All Electric Heat Pump	Incremental	1.063	940
	Full	1.680	595
Water Heater Replacement No-Cost Upgrade	Incremental	0.725	1,380
	Full	0.874	1,145

Notes:

[1] These are example measure concepts adapted from Appendix J. Energy savings were modeled by ConSol using 2016 CBECC-Res software.

[2] Incremental savings claimed indicates the Project funds the incremental cost of an upgrade and claims the emissions savings for this incremental gain; for example, when a homeowner goes to replace an HVAC system with the minimum Title 24-compliant unit, instead a highly efficient unit is offered with the difference in cost covered by the Project. Full savings claimed indicates a funding structure where the Project funds a large portion (50-80%) of the total measure costs and claims the entire emissions savings from the measure; for example, replacing a 1975 baseline HVAC system with a highly efficient unit. The energy savings are not directly proportional to costs in these two funding mechanisms.

[3] Annual savings attributed to market intervention is the amount of GHG savings that are claimed due to the program incentive. Electricity and natural gas savings for each measure are presented in Appendix J. The electricity emission factor assumes 50% RPS. Depending on whether the funding structure is the 'full savings claimed' or 'incremental savings claimed', this is either the full savings from a 1975 baseline unit to a highly efficient unit, or the incremental savings from a minimum Title 24-compliant unit to a highly efficient unit.

Abbreviations

GHG - greenhouse gases

HVAC - heating ventilation air conditioning

MT - metric tonnes

Table 5-1. Summary of GHG Reductions Associated with Mitigation Measures
RMDP/SCP
Los Angeles County, California

Mitigation Measure	Emissions Reduction ($MT\ CO_2e$ / year)	References[1]
Mobile		
GCC-4 - Residential EV Chargers and Vehicle Subsidy	53,724	Table ES-3
GCC-5 - Commercial Development Area EV Chargers	39,109	Table ES-3
GCC-6 - Transportation Demand Management Plan	60,168	Table ES-3
GCC-7 - Traffic Signal Synchronization	8,212	Table ES-3
GCC-8 - Electric School Bus Program	157	Table ES-3
GCC-9 - Electric Transit Bus Subsidy	619	Table ES-3
GCC-12 - Off-Site EV Chargers	39,813	Table ES-3
Electricity[2]		
GCC-1 - Residential Zero Net Energy	18,930	Table 4-1a and 4-1b
GCC-2 - Commercial Zero Net Energy	24,843	Table 4-2a and 4-2b
GCC-11 - Building Retrofit Program	500	Table ES-3
Natural Gas[2]		
GCC-1 - Residential Zero Net Energy	11,726	Table 4-1a and 4-1b
GCC-2 - Commercial Zero Net Energy	612	Table 4-2a and 4-2b
GCC-3 - Swimming Pool Heating	22,356	Table ES-3
GCC-11 - Building Retrofit Program	500	Table ES-3
Area Sources		
N/A	--	--
Water Consumption and Wastewater Treatment		
N/A	--	--
Solid Waste Generation		
N/A	--	--
Vegetation Removal		
GCC-10 - Offsetting Construction and Vegetation Change Emissions	1,335	Table ES-2
Construction		
GCC-10 - Offsetting Construction and Vegetation Change Emissions	6,437	Table ES-2
Subtotal GHG Reductions by Measures 1-12 (Mitigation)	289,043	Table ES-3
Offset of Remaining Emissions		
GCC-13 - Zero GHG Plan (Mobile)	202,011	Table ES-2
GCC-13 - Zero GHG Plan (Electricity)[3]	-4,880	Table 2-14a and 2-14b
GCC-13 - Zero GHG Plan (Natural Gas)[3]	8,192	Table 2-14a and 2-14b
GCC-13 - Zero GHG Plan (Area Sources)	367	Table ES-2
GCC-13 - Zero GHG Plan (Water Consumption and Wastewater Treatment)	8,190	Table ES-2
GCC-13 - Zero GHG Plan (Solid Waste Generation)	23,179	Table ES-2
Subtotal GHG Reductions by Measure 13	237,059	Table ES-2
Total Reductions	526,103	Table ES-2

[1] Reference identifies where these values were first summarized. Additional background regarding these emission estimates are included in the tables within this Technical Report.

[2] The zero net energy mitigation measures are split by calculating the emissions for electricity and natural gas separately, instead of combined as shown in tables 4-1a through 4-2b consistent with actual emissions reductions. The offsite building retrofits are split assuming 50% electricity and 50% natural gas.

[3] The zero net energy mitigation measures are split based on the anticipated emissions reductions. These are calculated by summing the total energy (i.e., electricity or natural gas) related GHG emissions and subtracting the GHG reductions as summarized above. The negative value for electricity represents additional electricity generated due to solar PV.

Abbreviations:

CO_2e - carbon dioxide equivalents
EV - electric vehicle
GHG - greenhouse gases
MT - metric tonnes
PV - photovoltaic

Table 5-2. Summary of Unmitigated and Mitigated Project GHG Emissions
RMDP/SCP
Los Angeles County, California

Emissions / Mitigation Measure	Emissions (MT CO_2e / year)			References[1]
	Unmitigated	Reduction	Post-Zero Net Mitigation	
Mobile	403,814			Table ES-2
		201,803		Table ES-3
			202,011	
Electricity	39,393			Tables 2-14a and 2-14b
		44,274		Table 5-1
			-4,880	
Natural Gas	43,386			Tables 2-14a and 2-14b
		35,194		Table 5-1
			8,192	
Area Sources	367			Table ES-2
		0		
			367	
Water Consumption and Wastewater Treatment	8,190			Table ES-2
		0		
			8,190	
Solid Waste Generation	23,179			Table ES-2
		0		
			23,179	
Vegetation Removal	1,335			Table ES-2
		1,335		Table ES-2
			0	
Construction	6,437			Table ES-2
		6,437		Table ES-2
			0	
Sub-Total Annual Emissions	526,103	289,043	237,059	Table ES-2 and ES-3
GCC-13 GHG Reductions		237,059		
Total Annual Emissions	526,103		0	

[1] Reference identifies where these values were first summarized. Additional background regarding these emission estimates are included in the tables within this Technical Report.

Abbreviations:
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes

APPENDIX A
CALCULATION METHODOLOGY FOR GHG EMISSIONS UNDER EXISTING CONDITIONS

Table A-1. Existing Conditions - Farming
RMDP/SCP
Los Angeles County, California

Description	Activity Data Current	Units	Source(s)
Area of disturbed farmland	2166.3	acre	RMDP/SCP Greenhouse Gas Emissions Technical Report, Table 2-10b.
US average amount of water used for irrigation, in 2013	1.60	acre-feet water/acre irrigated	USDA. Farm and Ranch Irrigation Survey. 2013. Table 6. Available at: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Farm_and_Ranch_Irrigation_Survey/fris13_1_006_006.pdf. Accessed: September 2016.
Total acre-feet used	3466.18	acre-feet	Calculations: Area of disturbed farmland * US average amount of water used for irrigation, in 2013
kWh/acre-foot	3,170	kWh/acre-feet	California Energy Commission. 2006. Refining Estimates of Water-Related Energy Use in California. PIER Final Project Report. Prepared by Navigant Consulting, Inc. CEC-500-2006-118. Table ES-1. Available at: http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF. Accessed: September 2016.
Electricity use for water	10,987,800	kWh/year	Calculations: Total acre-feet used * kWh/acre-foot
CO_2 Emission Factor for electricity used	599.26	lb CO_2/MWh	RMDP/SCP Greenhouse Gas Emissions Technical Report, Table 2-12.
Crop grown on an acre, per year	148.6	bu	USDA. 2014. Feeds Grain Database. Average US Corn Yield Per Acre for 1999-2015. Available at: http://www.ers.usda.gov/data-products/feed-grains-database/feed-grains-custom-query.aspx. Accessed: September 2016.
Crop grown on an acre, per year	3,774.51	kg	Calculations: Crop grown on an acre (in bu) * 56 lb per corn bu * 0.453592 kg per lbs (Conversion factor of bu to lbs from: NREL. 2014. US Life Cycle Inventory Database. Available at: https://www.lcacommons.gov/nrel/search. Accessed: September 2016.
Nitrogen fertilizer required to produce 1 kg of crop	0.0169	kg	NREL. 2014. US Life Cycle Inventory Database. Available at: https://www.lcacommons.gov/nrel/search. Accessed: September 2016.
Nitrogen fertilizer required for 1 acre of crop production	63.8	kg	Calculations: Crop grown on an acre, per year (in kg) * Nitrogen fertilizer required to produce 1 kg of crop
Nitrogen fertilizer required for acreage	138,187	kg	Calculations: Area of disturbed farmland * Nitrogen fertilizer required for one acre of crop production
N_2O Emission Factor for emissions from synthetic/organic N inputs	1%	--	IPCC. 2006. Guidelines for National Greenhouse Gas Inventories. Table 11.1. Available at: http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_11_Ch11_N2O&CO2.pdf. Accessed: September 2016.
Total N_2O Emissions	1,381.87	kg	Calculations: Nitrogen fertilizer required for acreage * N_2O Emission Factor for emissions from N inputs
GWP of N_2O	298	--	IPCC. 2007. Fourth Assessment Report: Climate Change. Available at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016.
Total N_2O Emissions (in CO_2e)	411,796	kg	Calculations: Total N_2O Emissions * GWP of N_2O
Tractor diesel fuel usage rate	6.85	gallon/acre	USDA. 2001. The 2001 Net Energy Balance of Corn-Ethanol. Table 1. Available at: http://apps1.eere.energy.gov/news/pdfs/net_energy_balance.pdf. Accessed: September 2016.
Diesel fuel usage for acreage	14,839	gallon	Calculations: Area of disturbed farmland * Tractor diesel fuel usage rate
CO_2 Emission Factor per unit volume for diesel fuel	10.21	kg CO_2/gallon	The Climate Registry. 2015. General Reporting Protocol. Table 13.1. Available at: http://www.theclimateregistry.org/wp-content/uploads/2015/04/2015-TCR-Default-EF-April-2015-FINAL.pdf. Accessed: September 2016.

Abbreviations:
bu - bushel
CO_2e - carbon dioxide equivalents
CO_2 - carbon dioxide
GWP - global warming potential
IPCC - Intergovernmental Panel on Climate Change
kg - kilogram
kW - kilowatts
kWh - kilowatt -hour
lb - pound
MT - metric tonnes
MWh - megawatt-hour
N - nitrogen
N_2O - nitrous oxide
NREL - National Renewable Energy Laboratory
PIER - Public Interest Energy Research
USDA - United States Department of Agriculture

Table A-2. Existing Conditions - Oil Production
RMDP/SCP
Los Angeles County, California

Description	Activity Data Current	Units	Source(s)
Number of wells (pump jacks)	59	wells	Information provided by Newhall.
Average barrels of oil produced annually	10,950	barrels oil/year	Information provided by Newhall.
Methane produced from production activities	0.51730	lb methane/barrel produced	2009 API Compendium, Table 6-2. Onshore Oil Production. Available at: http://www.api.org/~/media/files/ehs/climate-change/2009_ghg_compendium.ashx. Accessed: September 2016.
Methane produced from production activities	0.00023	MT methane/barrel	Unit conversion.
Methane production from one well	2.57	MT methane	Calculations: Oil produced * methane per barrel.
Methane production from wells	152	MT methane	Calculations: # wells * methane per well.
Electricity use for a well, in HP	35	HP	Information provided by Newhall.
Convert HP to kilowatt	0.746	kW	Standard conversion.
Electricity use per year per well	228,632	kWh	Calculations: Electricity use for a well, in HP * Convert HP to kilowatt * 24 per day * 365 days per year.
Electricity use for wells	13,489,263	kWh/year	Calculations: # of wells * electricity use per well.

Abbreviations:
API - American Petroleum Institute
CO_2e - carbon dioxide equivalents
HP - horsepower
IPCC - Intergovernmental Panel on Climate Change
kW - kilowatts
kWh - kilowatt-hour
MT - metric tonnes

Table A-3. Existing Conditions - Emissions
RMDP/SCP
Los Angeles County, California

Description	Activity Data Current	Units	Source(s)
CH_4 emissions associated with oil wells	3,790	MT CO_2e	Calculations: methane production per well x methane global warming potential (25 is GWP of methane using IPCC Fourth Assessment Report references).
Energy use associated with oil wells	3,682	MT CO_2e	Calculations: 601.8 lbs per MWh/2,205 lbs per metric ton * Electricity use for wells / 1000 kWh per MWh. The Newhall Ranch 2010 RPS emission factor is 601.8 lbs CO2/MWh. Note: carbon intensity for 2030 is 377.1.
Energy use associated with water	2,987	MT CO_2e	Calculations: [Electricity use for water (in kWh) * 0.001 MWh per kWh * CO_2 Emission Factor for electricity used (in lb CO_2 per MWh)] /2,204.62 lb per MT.
N_2O Emissions associated with fertilizer use	412	MT CO_2e	Calculations: Total N_2O Emissions (in kg CO_2e)/1000 kg per MT.
Diesel fuel usage	152	MT CO_2e	Calculations: [Diesel fuel usage * CO_2 Emission Factor for diesel] /1000 kg per MT.
Total	11,021	MT CO_2e	

Abbreviations:
CH_4 - methane
CO_2e - carbon dioxide equivalents
CO_2 - carbon dioxide
GWP - global warming potential
IPCC - Intergovernmental Panel on Climate Change
kg - kilogram
kWh - kilowatt - hour
lb - pound
MT - metric tonnes
MWh - megawatt-hour
N_2O - nitrous oxide
RPS - Renewable Portfolio Standard

APPENDIX B
CALEEMOD® OUTPUT FILES

Table B-1. CalEEMod® Model Outputs Descriptions

RMDP/SCP

Los Angeles County, California

Construction CalEEMod® Runs	
Output	**Scenario**
Construction Stage 1	Construction - GHGs
Construction Stage 2	
Construction Stage 3	
Construction Stage 4	
Construction Stage 5	
Construction Stage 6	
Operational CalEEMod® Runs	
Output	**Scenario**
ES 2030 Unmitigated	2030 Unmitigated Project
NRSP 2030 Unmitigated	
VCC 2030 Unmitigated	

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

ES - Entrada South

GHGs - Greenhouse Gases

NRSP - Newhall Ranch Specific Plan

RMDP/SCP - Resource Management and Development Plan/Spineflower Conservation Plan

VCC - Valencia Commerce Center

Construction Stage 1

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	745.00	1000sqft	30.70	745,000.00	0
Elementary School	900.00	1000sqft	13.00	71,500.00	0
Library	36.00	1000sqft	3.30	36,000.00	0
General Light Industry	11.00	1000sqft	1.40	11,000.00	0
Health Club	9.80	1000sqft	4.70	9,800.00	0
Condo/Townhouse	3,286.00	Dwelling Unit	276.20	3,286,000.00	10351
Single Family Housing	1,138.00	Dwelling Unit	172.60	2,048,400.00	3585
Regional Shopping Center	1,414.00	1000sqft	58.20	1,414,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Based on project construction schedule.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list. The second Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. The second Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. The second Other Material Handling Equipment is a Water Truck.

Trips and VMT - Default Worker and Vendor Trips. Hauling Trips in the Mass Grading phases account for hauling trips for vegetation.

Grading -

Vehicle Trips - Operational emissions calculated separately.

Woodstoves - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Solid Waste - Operational emissions calculated separately.

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	NumDays	660.00	146.00
tblConstructionPhase	NumDays	660.00	146.00
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tblConstructionPhase	NumDays	9,300.00	154.00
tblConstructionPhase	NumDays	9,300.00	154.00
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tblConstructionPhase	NumDays	9,300.00	161.00
tblConstructionPhase	NumDays	9,300.00	154.00

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tblConstructionPhase	NumDays	930.00	40.00
tblConstructionPhase	NumDays	930.00	885.00
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tblConstructionPhase	NumDays	660.00	135.00
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tblConstructionPhase	NumDays	660.00	141.00
tblConstructionPhase	NumDays	660.00	230.00
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tblConstructionPhase	NumDays	660.00	135.00
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tblConstructionPhase	PhaseEndDate	2/24/2023	8/3/2023
tblConstructionPhase	PhaseEndDate	2/23/2024	8/1/2024
tblConstructionPhase	PhaseEndDate	2/21/2025	8/4/2025
tblConstructionPhase	PhaseEndDate	2/24/2026	8/4/2026
tblConstructionPhase	PhaseEndDate	2/24/2027	8/4/2027
tblConstructionPhase	PhaseEndDate	3/6/2028	8/14/2028

tblConstructionPhase	PhaseEndDate	11/15/2021	7/20/2021
tblConstructionPhase	PhaseEndDate	7/21/2022	7/21/2021
tblConstructionPhase	PhaseEndDate	2/9/2023	7/8/2022
tblConstructionPhase	PhaseEndDate	2/8/2024	7/7/2023
tblConstructionPhase	PhaseEndDate	2/6/2025	7/5/2024
tblConstructionPhase	PhaseEndDate	2/9/2026	7/8/2025
tblConstructionPhase	PhaseEndDate	2/9/2027	7/8/2026
tblConstructionPhase	PhaseEndDate	2/9/2028	7/8/2027
tblConstructionPhase	PhaseEndDate	2/27/2029	7/17/2028
tblConstructionPhase	PhaseEndDate	8/23/2021	8/30/2021
tblConstructionPhase	PhaseEndDate	9/30/2021	12/31/2020
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tblConstructionPhase	PhaseStartDate	7/9/2022	1/1/2022
tblConstructionPhase	PhaseStartDate	7/8/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	7/6/2024	1/1/2024
tblConstructionPhase	PhaseStartDate	7/9/2025	1/1/2025
tblConstructionPhase	PhaseStartDate	7/9/2026	1/1/2026
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tblConstructionPhase	PhaseStartDate	7/26/2022	1/1/2023
tblConstructionPhase	PhaseStartDate	7/25/2023	1/1/2024
tblConstructionPhase	PhaseStartDate	7/23/2024	1/1/2025
tblConstructionPhase	PhaseStartDate	7/24/2025	1/1/2026

tblConstructionPhase	PhaseStartDate	7/24/2026	1/1/2027
tblConstructionPhase	PhaseStartDate	7/24/2027	1/1/2028
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tblConstructionPhase	PhaseStartDate	3/1/2019	3/1/2018
tblConstructionPhase	PhaseStartDate	8/5/2022	1/1/2022
tblConstructionPhase	PhaseStartDate	8/4/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	8/2/2024	1/1/2024
tblConstructionPhase	PhaseStartDate	8/5/2025	1/1/2025
tblConstructionPhase	PhaseStartDate	8/5/2026	1/1/2026
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tblConstructionPhase	PhaseStartDate	8/15/2028	1/1/2028
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tblConstructionPhase	PhaseStartDate	8/31/2021	12/1/2020
tblConstructionPhase	PhaseStartDate	8/5/2021	1/1/2021
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tblEnergyUse	NT24E	5.75	0.00

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tblEnergyUse	T24E	4.90	0.00
tblEnergyUse	T24E	596.10	0.00
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tblFireplaces	NumberNoFireplace	113.80	0.00
tblFireplaces	NumberWood	164.30	0.00
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tblSolidWaste	SolidWasteGenerationRate	692.85	0.00
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tblSolidWaste	SolidWasteGenerationRate	1,484.70	0.00
tblSolidWaste	SolidWasteGenerationRate	1,469.85	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	16,704.00
tblTripsAndVMT	HaulingTripNumber	0.00	56,640.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	2.37	0.00
tblVehicleTrips	ST_TR	20.87	0.00

tblVehicleTrips	ST_TR	46.55	0.00
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tblVehicleTrips	ST_TR	10.08	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	0.98	0.00
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tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	15.43	0.00
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tblWater	IndoorWaterUseRate	1,126,400.70	0.00
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tblWater	IndoorWaterUseRate	74,145,281.16	0.00
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tblWater	OutdoorWaterUseRate	81,155,522.67	0.00
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tblWater	OutdoorWaterUseRate	64,194,592.33	0.00
tblWater	OutdoorWaterUseRate	46,743,764.21	0.00
tblWoodstoves	NumberCatalytic	164.30	0.00
tblWoodstoves	NumberCatalytic	56.90	0.00
tblWoodstoves	NumberNoncatalytic	164.30	0.00
tblWoodstoves	NumberNoncatalytic	56.90	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018											0.0000	4,504.6777	4,504.6777	1.0906	0.0000	4,527.5805
2019											0.0000	5,230.5805	5,230.5805	1.4152	0.0000	5,260.2985
2020											0.0000	4,977.8658	4,977.8658	1.3985	0.0000	5,007.2332
2021											0.0000	8,449.3047	8,449.3047	1.0915	0.0000	8,472.2258
2022											0.0000	5,467.3250	5,467.3250	0.2597	0.0000	5,472.7794
2023											0.0000	5,401.2290	5,401.2290	0.2511	0.0000	5,406.5010
2024											0.0000	5,376.4732	5,376.4732	0.2463	0.0000	5,381.6461
2025											0.0000	5,328.0735	5,328.0735	0.2407	0.0000	5,333.1271
2026											0.0000	5,285.1931	5,285.1931	0.2355	0.0000	5,290.1392
2027											0.0000	5,247.9573	5,247.9573	0.2312	0.0000	5,252.8127
2028											0.0000	5,446.1437	5,446.1437	0.2374	0.0000	5,451.1281
Total											**0.0000**	**60,714.8232**	**60,714.8232**	**6.6975**	**0.0000**	**60,855.4715**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018											0.0000	4,504.6736	4,504.6736	1.0906	0.0000	4,527.5763
2019											0.0000	5,230.5752	5,230.5752	1.4151	0.0000	5,260.2932
2020											0.0000	4,977.8607	4,977.8607	1.3985	0.0000	5,007.2280
2021											0.0000	8,449.3013	8,449.3013	1.0915	0.0000	8,472.2225
2022											0.0000	5,467.3247	5,467.3247	0.2597	0.0000	5,472.7791
2023											0.0000	5,401.2287	5,401.2287	0.2511	0.0000	5,406.5006
2024											0.0000	5,376.4728	5,376.4728	0.2463	0.0000	5,381.6458
2025											0.0000	5,328.0732	5,328.0732	0.2407	0.0000	5,333.1268
2026											0.0000	5,285.1928	5,285.1928	0.2355	0.0000	5,290.1389
2027											0.0000	5,247.9570	5,247.9570	0.2312	0.0000	5,252.8124
2028											0.0000	5,446.1434	5,446.1434	0.2374	0.0000	5,451.1278
Total											**0.0000**	**60,714.8032**	**60,714.8032**	**6.6975**	**0.0000**	**60,855.4513**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	74.6020	74.6020	0.0712	0.0000	76.0973
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**74.6020**	**74.6020**	**0.0712**	**0.0000**	**76.0973**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	74.6020	74.6020	0.0712	0.0000	76.0973
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**74.6020**	**74.6020**	**0.0712**	**0.0000**	**76.0973**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mass Grading - Utility Corridor	Grading	3/1/2018	2/28/2019	5	261	
2	Mass Grading	Grading	3/1/2018	7/21/2021	5	885	
3	Trenching - Sewer	Trenching	11/1/2018	6/10/2021	5	681	

4	Trenching - Storm Drain	Trenching	3/1/2019	6/18/2020	5	340	
5	Trenching - Water	Trenching	5/1/2019	10/5/2020	5	374	
6	Paving - Street	Paving	10/13/2020	8/30/2021	5	230	
7	Paving 0	Paving	12/1/2020	12/31/2020	5	23	
8	Building Construction 1	Building Construction	1/1/2021	8/4/2021	5	154	
9	Paving 1	Paving	1/1/2021	7/8/2021	5	135	
10	Architectural Coating 1	Architectural Coating	3/1/2021	9/20/2021	5	146	
11	Fine Grading - Stabilization	Grading	5/26/2021	7/20/2021	5	40	
12	Building Construction 2	Building Construction	1/1/2022	8/4/2022	5	154	
13	Paving 2	Paving	1/1/2022	7/8/2022	5	135	
14	Architectural Coating 2	Architectural Coating	1/1/2022	7/25/2022	5	146	
15	Building Construction 3	Building Construction	1/1/2023	8/3/2023	5	154	
16	Paving 3	Paving	1/1/2023	7/7/2023	5	135	
17	Architectural Coating 3	Architectural Coating	1/1/2023	7/24/2023	5	146	
18	Building Construction 4	Building Construction	1/1/2024	8/1/2024	5	154	
19	Paving 4	Paving	1/1/2024	7/5/2024	5	135	
20	Architectural Coating 4	Architectural Coating	1/1/2024	7/22/2024	5	146	
21	Building Construction 5	Building Construction	1/1/2025	8/4/2025	5	154	
22	Paving 5	Paving	1/1/2025	7/8/2025	5	135	
23	Architectural Coating 5	Architectural Coating	1/1/2025	7/23/2025	5	146	
24	Building Construction 6	Building Construction	1/1/2026	8/4/2026	5	154	
25	Paving 6	Paving	1/1/2026	7/8/2026	5	135	
26	Architectural Coating 6	Architectural Coating	1/1/2026	7/23/2026	5	146	
27	Building Construction 7	Building Construction	1/1/2027	8/4/2027	5	154	
28	Paving 7	Paving	1/1/2027	7/8/2027	5	135	
29	Architectural Coating 7	Architectural Coating	1/1/2027	7/23/2027	5	146	
30	Building Construction 8	Building Construction	1/1/2028	8/14/2028	5	161	
31	Paving 8	Paving	1/1/2028	7/17/2028	5	141	

32	Architectural Coating 8	Architectural Coating	1/15/2028	8/14/2028	5	151	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 10,802,160; Residential Outdoor: 3,600,720; Non-Residential Indoor: 3,430,950; Non-Residential Outdoor: 1,143,650 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Mass Grading - Utility Corridor	Crawler Tractors	1	8.00	82	0.43
Mass Grading - Utility Corridor	Excavators	2	8.00	157	0.38
Mass Grading - Utility Corridor	Off-Highway Trucks	1	8.00	381	0.38
Mass Grading - Utility Corridor	Other Material Handling Equipment	1	8.00	196	0.38
Mass Grading - Utility Corridor	Rubber Tired Loaders	1	8.00	200	0.36
Mass Grading	Crawler Tractors	4	10.00	82	0.43
Mass Grading	Excavators	2	10.00	157	0.38
Mass Grading	Graders	2	10.00	162	0.41
Mass Grading	Off-Highway Trucks	2	10.00	381	0.38
Mass Grading	Other Material Handling Equipment	6	10.00	196	0.38
Mass Grading	Rubber Tired Dozers	2	10.00	358	0.40
Mass Grading	Scrapers	8	10.00	356	0.48
Mass Grading	Tractors/Loaders/Backhoes	1	10.00	97	0.37
Trenching - Sewer	Cranes	1	8.00	226	0.29
Trenching - Sewer	Excavators	1	8.00	157	0.38
Trenching - Sewer	Other Material Handling Equipment	1	8.00	196	0.40
Trenching - Sewer	Other Material Handling Equipment	1	8.00	196	0.38
Trenching - Sewer	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trenching - Storm Drain	Cranes	1	8.00	226	0.29
Trenching - Storm Drain	Excavators	1	8.00	157	0.38
Trenching - Storm Drain	Other Material Handling Equipment	1	8.00	196	0.40
Trenching - Storm Drain	Other Material Handling Equipment	1	8.00	196	0.38
Trenching - Storm Drain	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching - Water	Cranes	1	8.00	226	0.29
Trenching - Water	Excavators	1	8.00	157	0.38
Trenching - Water	Other Material Handling Equipment	1	8.00	196	0.40
Trenching - Water	Other Material Handling Equipment	1	8.00	196	0.38
Trenching - Water	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving - Street	Graders	1	8.00	162	0.41
Paving - Street	Other Material Handling Equipment	1	8.00	196	0.38
Paving - Street	Pavers	1	8.00	89	0.42
Paving - Street	Rollers	1	8.00	84	0.38
Paving - Street	Scrapers	1	8.00	356	0.48
Paving 0	Pavers	1	8.00	89	0.42
Paving 0	Paving Equipment	2	8.00	82	0.36
Paving 0	Rollers	2	6.00	84	0.38
Building Construction 1	Cranes	1	7.00	226	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Paving 1	Pavers	1	8.00	89	0.42
Paving 1	Paving Equipment	2	8.00	82	0.36
Paving 1	Rollers	2	6.00	84	0.38
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Fine Grading - Stabilization	Crawler Tractors	1	8.00	82	0.43

Fine Grading - Stabilization	Crushing/Proc. Equipment	1	8.00	85	0.78
Fine Grading - Stabilization	Excavators	1	8.00	157	0.38
Fine Grading - Stabilization	Graders	1	8.00	162	0.41
Fine Grading - Stabilization	Off-Highway Trucks	2	8.00	381	0.38
Fine Grading - Stabilization	Other Material Handling Equipment	1	8.00	196	0.38
Fine Grading - Stabilization	Rollers	1	8.00	84	0.38
Fine Grading - Stabilization	Rubber Tired Dozers	1	8.00	358	0.40
Fine Grading - Stabilization	Scrapers	4	8.00	356	0.48
Fine Grading - Stabilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction 2	Cranes	1	7.00	226	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Paving 2	Pavers	1	8.00	89	0.42
Paving 2	Paving Equipment	2	8.00	82	0.36
Paving 2	Rollers	2	6.00	84	0.38
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Construction 3	Cranes	1	7.00	226	0.29
Building Construction 3	Forklifts	3	8.00	89	0.20
Building Construction 3	Generator Sets	1	8.00	84	0.74
Building Construction 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 3	Welders	1	8.00	46	0.45
Paving 3	Pavers	1	8.00	89	0.42
Paving 3	Paving Equipment	2	8.00	82	0.36
Paving 3	Rollers	2	6.00	84	0.38
Architectural Coating 3	Air Compressors	1	6.00	78	0.48
Building Construction 4	Cranes	1	7.00	226	0.29

Building Construction 4	Forklifts	3	8.00	89	0.20
Building Construction 4	Generator Sets	1	8.00	84	0.74
Building Construction 4	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 4	Welders	1	8.00	46	0.45
Paving 4	Pavers	1	8.00	89	0.42
Paving 4	Paving Equipment	2	8.00	82	0.36
Paving 4	Rollers	2	6.00	84	0.38
Architectural Coating 4	Air Compressors	1	6.00	78	0.48
Building Construction 5	Cranes	1	7.00	226	0.29
Building Construction 5	Forklifts	3	8.00	89	0.20
Building Construction 5	Generator Sets	1	8.00	84	0.74
Building Construction 5	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 5	Welders	1	8.00	46	0.45
Paving 5	Pavers	1	8.00	89	0.42
Paving 5	Paving Equipment	2	8.00	82	0.36
Paving 5	Rollers	2	6.00	84	0.38
Architectural Coating 5	Air Compressors	1	6.00	78	0.48
Building Construction 6	Cranes	1	7.00	226	0.29
Building Construction 6	Forklifts	3	8.00	89	0.20
Building Construction 6	Generator Sets	1	8.00	84	0.74
Building Construction 6	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 6	Welders	1	8.00	46	0.45
Paving 6	Pavers	1	8.00	89	0.42
Paving 6	Paving Equipment	2	8.00	82	0.36
Paving 6	Rollers	2	6.00	84	0.38
Architectural Coating 6	Air Compressors	1	6.00	78	0.48
Building Construction 7	Cranes	1	7.00	226	0.29
Building Construction 7	Forklifts	3	8.00	89	0.20

Building Construction 7	Generator Sets	1	8.00	84	0.74
Building Construction 7	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 7	Welders	1	8.00	46	0.45
Paving 7	Pavers	1	8.00	89	0.42
Paving 7	Paving Equipment	2	8.00	82	0.36
Paving 7	Rollers	2	6.00	84	0.38
Architectural Coating 7	Air Compressors	1	6.00	78	0.48
Building Construction 8	Cranes	1	7.00	226	0.29
Building Construction 8	Forklifts	3	8.00	89	0.20
Building Construction 8	Generator Sets	1	8.00	84	0.74
Building Construction 8	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 8	Welders	1	8.00	46	0.45
Paving 8	Pavers	1	8.00	89	0.42
Paving 8	Paving Equipment	2	8.00	82	0.36
Paving 8	Rollers	2	6.00	84	0.38
Architectural Coating 8	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Mass Grading - Utility Corridor	6	15.00	0.00	16,704.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Mass Grading	27	68.00	0.00	56,640.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching - Sewer	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching - Storm Drain	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching - Water	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving - Street	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 0	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

Paving 1	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading - Stabilization	14	35.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 2	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 3	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 3	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 4	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 4	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 4	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 5	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 5	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 5	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 6	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 6	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 6	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 7	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 7	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 7	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 8	9	3,520.00	848.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving 8	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 8	1	704.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Mass Grading - Utility Corridor - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	382.0377	382.0377	0.1189	0.0000	384.5354
Total											**0.0000**	**382.0377**	**382.0377**	**0.1189**	**0.0000**	**384.5354**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	460.4512	460.4512	3.5200e-003	0.0000	460.5252
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	21.7216	21.7216	1.1300e-003	0.0000	21.7454
Total											**0.0000**	**482.1728**	**482.1728**	**4.6500e-003**	**0.0000**	**482.2705**

3.2 Mass Grading - Utility Corridor - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	382.0373	382.0373	0.1189	0.0000	384.5349
Total											**0.0000**	**382.0373**	**382.0373**	**0.1189**	**0.0000**	**384.5349**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	460.4512	460.4512	3.5200e-003	0.0000	460.5252
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	21.7216	21.7216	1.1300e-003	0.0000	21.7454
Total											**0.0000**	**482.1728**	**482.1728**	**4.6500e-003**	**0.0000**	**482.2705**

3.2 Mass Grading - Utility Corridor - 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	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	74.1328	74.1328	0.0235	0.0000	74.6254
Total											**0.0000**	**74.1328**	**74.1328**	**0.0235**	**0.0000**	**74.6254**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	88.9788	88.9788	6.9000e-004	0.0000	88.9933
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.1164	4.1164	2.1000e-004	0.0000	4.1208
Total											**0.0000**	**93.0952**	**93.0952**	**9.0000e-004**	**0.0000**	**93.1141**

3.2 Mass Grading - Utility Corridor - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	74.1327	74.1327	0.0235	0.0000	74.6253
Total											**0.0000**	**74.1327**	**74.1327**	**0.0235**	**0.0000**	**74.6253**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	88.9788	88.9788	6.9000e-004	0.0000	88.9933
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.1164	4.1164	2.1000e-004	0.0000	4.1208
Total											**0.0000**	**93.0952**	**93.0952**	**9.0000e-004**	**0.0000**	**93.1141**

3.3 Mass Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3,024.8219	3,024.8219	0.9417	0.0000	3,044.5970
Total											**0.0000**	**3,024.8219**	**3,024.8219**	**0.9417**	**0.0000**	**3,044.5970**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	460.4512	460.4512	3.5200e-003	0.0000	460.5252
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	98.4711	98.4711	5.1400e-003	0.0000	98.5790
Total											**0.0000**	**558.9223**	**558.9223**	**8.6600e-003**	**0.0000**	**559.1041**

3.3 Mass Grading - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3,024.818 3	3,024.818 3	0.9417	0.0000	3,044.593 3
Total											**0.0000**	**3,024.818 3**	**3,024.818 3**	**0.9417**	**0.0000**	**3,044.593 3**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	460.4512	460.4512	3.5200e-003	0.0000	460.5252
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	98.4711	98.4711	5.1400e-003	0.0000	98.5790
Total											**0.0000**	**558.9223**	**558.9223**	**8.6600e-003**	**0.0000**	**559.1041**

3.3 Mass Grading - 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	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3,562.5606	3,562.5606	1.1272	0.0000	3,586.2309
Total											**0.0000**	**3,562.5606**	**3,562.5606**	**1.1272**	**0.0000**	**3,586.2309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	540.0808	540.0808	4.1800e-003	0.0000	540.1686
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	113.2680	113.2680	5.7500e-003	0.0000	113.3888
Total											**0.0000**	**653.3489**	**653.3489**	**9.9300e-003**	**0.0000**	**653.5574**

3.3 Mass Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3,562.556 3	3,562.556 3	1.1272	0.0000	3,586.226 6
Total											**0.0000**	**3,562.556 3**	**3,562.556 3**	**1.1272**	**0.0000**	**3,586.226 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	540.0808	540.0808	4.1800e-003	0.0000	540.1686
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	113.2680	113.2680	5.7500e-003	0.0000	113.3888
Total											**0.0000**	**653.3489**	**653.3489**	**9.9300e-003**	**0.0000**	**653.5574**

3.3 Mass Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3,497.937 1	3,497.937 1	1.1313	0.0000	3,521.694 5
Total											**0.0000**	**3,497.937 1**	**3,497.937 1**	**1.1313**	**0.0000**	**3,521.694 5**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	530.0355	530.0355	4.2000e-003	0.0000	530.1237
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	109.1318	109.1318	5.4700e-003	0.0000	109.2468
Total											**0.0000**	**639.1673**	**639.1673**	**9.6700e-003**	**0.0000**	**639.3705**

3.3 Mass Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	3,497.933 0	3,497.933 0	1.1313	0.0000	3,521.690 3
Total											**0.0000**	**3,497.933 0**	**3,497.933 0**	**1.1313**	**0.0000**	**3,521.690 3**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	530.0355	530.0355	4.2000e-003	0.0000	530.1237
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	109.1318	109.1318	5.4700e-003	0.0000	109.2468
Total											**0.0000**	**639.1673**	**639.1673**	**9.6700e-003**	**0.0000**	**639.3705**

3.3 Mass Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,922.9036	1,922.9036	0.6219	0.0000	1,935.9636
Total											**0.0000**	**1,922.9036**	**1,922.9036**	**0.6219**	**0.0000**	**1,935.9636**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	291.1394	291.1394	2.3500e-003	0.0000	291.1887
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	59.0405	59.0405	2.8800e-003	0.0000	59.1009
Total											**0.0000**	**350.1798**	**350.1798**	**5.2300e-003**	**0.0000**	**350.2896**

3.3 Mass Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,922.9013	1,922.9013	0.6219	0.0000	1,935.9613
Total											**0.0000**	**1,922.9013**	**1,922.9013**	**0.6219**	**0.0000**	**1,935.9613**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	291.1394	291.1394	2.3500e-003	0.0000	291.1887
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	59.0405	59.0405	2.8800e-003	0.0000	59.1009
Total											**0.0000**	**350.1798**	**350.1798**	**5.2300e-003**	**0.0000**	**350.2896**

3.4 Trenching - Sewer - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	53.0096	53.0096	0.0165	0.0000	53.3562
Total											**0.0000**	**53.0096**	**53.0096**	**0.0165**	**0.0000**	**53.3562**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.7133	3.7133	1.9000e-004	0.0000	3.7173
Total											**0.0000**	**3.7133**	**3.7133**	**1.9000e-004**	**0.0000**	**3.7173**

3.4 Trenching - Sewer - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	53.0096	53.0096	0.0165	0.0000	53.3561
Total											**0.0000**	**53.0096**	**53.0096**	**0.0165**	**0.0000**	**53.3561**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.7133	3.7133	1.9000e-004	0.0000	3.7173
Total											**0.0000**	**3.7133**	**3.7133**	**1.9000e-004**	**0.0000**	**3.7173**

3.4 Trenching - Sewer - 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	tons/yr										MT/yr					
Off-Road											0.0000	316.5455	316.5455	0.1002	0.0000	318.6487
Total											**0.0000**	**316.5455**	**316.5455**	**0.1002**	**0.0000**	**318.6487**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	21.6542	21.6542	1.1000e-003	0.0000	21.6773
Total											**0.0000**	**21.6542**	**21.6542**	**1.1000e-003**	**0.0000**	**21.6773**

3.4 Trenching - Sewer - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	316.5452	316.5452	0.1002	0.0000	318.6483
Total											**0.0000**	**316.5452**	**316.5452**	**0.1002**	**0.0000**	**318.6483**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	21.6542	21.6542	1.1000e-003	0.0000	21.6773
Total											**0.0000**	**21.6542**	**21.6542**	**1.1000e-003**	**0.0000**	**21.6773**

3.4 Trenching - Sewer - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	310.8521	310.8521	0.1005	0.0000	312.9633
Total											**0.0000**	**310.8521**	**310.8521**	**0.1005**	**0.0000**	**312.9633**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	20.8634	20.8634	1.0500e-003	0.0000	20.8854
Total											**0.0000**	**20.8634**	**20.8634**	**1.0500e-003**	**0.0000**	**20.8854**

3.4 Trenching - Sewer - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	310.8517	310.8517	0.1005	0.0000	312.9630
Total											**0.0000**	**310.8517**	**310.8517**	**0.1005**	**0.0000**	**312.9630**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	20.8634	20.8634	1.0500e-003	0.0000	20.8854
Total											**0.0000**	**20.8634**	**20.8634**	**1.0500e-003**	**0.0000**	**20.8854**

3.4 Trenching - Sewer - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	136.4508	136.4508	0.0441	0.0000	137.3775
Total											**0.0000**	**136.4508**	**136.4508**	**0.0441**	**0.0000**	**137.3775**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.0140	9.0140	4.4000e-004	0.0000	9.0233
Total											**0.0000**	**9.0140**	**9.0140**	**4.4000e-004**	**0.0000**	**9.0233**

3.4 Trenching - Sewer - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	136.4506	136.4506	0.0441	0.0000	137.3774
Total											**0.0000**	**136.4506**	**136.4506**	**0.0441**	**0.0000**	**137.3774**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.0140	9.0140	4.4000e-004	0.0000	9.0233
Total											**0.0000**	**9.0140**	**9.0140**	**4.4000e-004**	**0.0000**	**9.0233**

3.5 Trenching - Storm Drain - 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	tons/yr										MT/yr					
Off-Road											0.0000	264.3944	264.3944	0.0837	0.0000	266.1510
Total											**0.0000**	**264.3944**	**264.3944**	**0.0837**	**0.0000**	**266.1510**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	18.0866	18.0866	9.2000e-004	0.0000	18.1059
Total											**0.0000**	**18.0866**	**18.0866**	**9.2000e-004**	**0.0000**	**18.1059**

3.5 Trenching - Storm Drain - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	264.3940	264.3940	0.0837	0.0000	266.1507
Total											**0.0000**	**264.3940**	**264.3940**	**0.0837**	**0.0000**	**266.1507**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	18.0866	18.0866	9.2000e-004	0.0000	18.1059
Total											**0.0000**	**18.0866**	**18.0866**	**9.2000e-004**	**0.0000**	**18.1059**

3.5 Trenching - Storm Drain - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	144.7479	144.7479	0.0468	0.0000	145.7310
Total											**0.0000**	**144.7479**	**144.7479**	**0.0468**	**0.0000**	**145.7310**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.7150	9.7150	4.9000e-004	0.0000	9.7253
Total											**0.0000**	**9.7150**	**9.7150**	**4.9000e-004**	**0.0000**	**9.7253**

3.5 Trenching - Storm Drain - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	144.7477	144.7477	0.0468	0.0000	145.7308
Total											**0.0000**	**144.7477**	**144.7477**	**0.0468**	**0.0000**	**145.7308**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.7150	9.7150	4.9000e-004	0.0000	9.7253
Total											**0.0000**	**9.7150**	**9.7150**	**4.9000e-004**	**0.0000**	**9.7253**

3.6 Trenching - Water - 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	tons/yr										MT/yr					
Off-Road											0.0000	212.2432	212.2432	0.0672	0.0000	213.6534
Total											**0.0000**	**212.2432**	**212.2432**	**0.0672**	**0.0000**	**213.6534**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	14.5191	14.5191	7.4000e-004	0.0000	14.5346
Total											**0.0000**	**14.5191**	**14.5191**	**7.4000e-004**	**0.0000**	**14.5346**

3.6 Trenching - Water - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	212.2429	212.2429	0.0672	0.0000	213.6531
Total											**0.0000**	**212.2429**	**212.2429**	**0.0672**	**0.0000**	**213.6531**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	14.5191	14.5191	7.4000e-004	0.0000	14.5346
Total											**0.0000**	**14.5191**	**14.5191**	**7.4000e-004**	**0.0000**	**14.5346**

3.6 Trenching - Water - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	236.1052	236.1052	0.0764	0.0000	237.7088
Total											**0.0000**	**236.1052**	**236.1052**	**0.0764**	**0.0000**	**237.7088**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	15.8467	15.8467	7.9000e-004	0.0000	15.8633
Total											**0.0000**	**15.8467**	**15.8467**	**7.9000e-004**	**0.0000**	**15.8633**

3.6 Trenching - Water - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	236.1049	236.1049	0.0764	0.0000	237.7085
Total											**0.0000**	**236.1049**	**236.1049**	**0.0764**	**0.0000**	**237.7085**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	15.8467	15.8467	7.9000e-004	0.0000	15.8633
Total											**0.0000**	**15.8467**	**15.8467**	**7.9000e-004**	**0.0000**	**15.8633**

3.7 Paving - Street - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	83.6325	83.6325	0.0271	0.0000	84.2005
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**83.6325**	**83.6325**	**0.0271**	**0.0000**	**84.2005**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.6186	4.6186	2.3000e-004	0.0000	4.6235
Total											**0.0000**	**4.6186**	**4.6186**	**2.3000e-004**	**0.0000**	**4.6235**

3.7 Paving - Street - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	83.6324	83.6324	0.0271	0.0000	84.2004
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**83.6324**	**83.6324**	**0.0271**	**0.0000**	**84.2004**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.6186	4.6186	2.3000e-004	0.0000	4.6235
Total											**0.0000**	**4.6186**	**4.6186**	**2.3000e-004**	**0.0000**	**4.6235**

3.7 Paving - Street - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	248.1224	248.1224	0.0803	0.0000	249.8076
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**248.1224**	**248.1224**	**0.0803**	**0.0000**	**249.8076**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	13.4819	13.4819	6.6000e-004	0.0000	13.4957
Total											**0.0000**	**13.4819**	**13.4819**	**6.6000e-004**	**0.0000**	**13.4957**

3.7 Paving - Street - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	248.1221	248.1221	0.0803	0.0000	249.8073
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**248.1221**	**248.1221**	**0.0803**	**0.0000**	**249.8073**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	13.4819	13.4819	6.6000e-004	0.0000	13.4957
Total											**0.0000**	**13.4819**	**13.4819**	**6.6000e-004**	**0.0000**	**13.4957**

3.8 Paving 0 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	12.5484	12.5484	4.0600e-003	0.0000	12.6336
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**12.5484**	**12.5484**	**4.0600e-003**	**0.0000**	**12.6336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8315	1.8315	9.0000e-005	0.0000	1.8335
Total											**0.0000**	**1.8315**	**1.8315**	**9.0000e-005**	**0.0000**	**1.8335**

3.8 Paving 0 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	12.5484	12.5484	4.0600e-003	0.0000	12.6336
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**12.5484**	**12.5484**	**4.0600e-003**	**0.0000**	**12.6336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.8315	1.8315	9.0000e-005	0.0000	1.8335
Total											**0.0000**	**1.8315**	**1.8315**	**9.0000e-005**	**0.0000**	**1.8335**

3.9 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.6215	177.6215	0.0428	0.0000	178.5201
Total											**0.0000**	**177.6215**	**177.6215**	**0.0428**	**0.0000**	**178.5201**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,364.6240	1,364.6240	9.9700e-003	0.0000	1,364.8334
Worker											0.0000	3,268.4497	3,268.4497	0.1594	0.0000	3,271.7967
Total											**0.0000**	**4,633.0736**	**4,633.0736**	**0.1694**	**0.0000**	**4,636.6301**

3.9 Building Construction 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.6213	177.6213	0.0428	0.0000	178.5199
Total											**0.0000**	**177.6213**	**177.6213**	**0.0428**	**0.0000**	**178.5199**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,364.6240	1,364.6240	9.9700e-003	0.0000	1,364.8334
Worker											0.0000	3,268.4497	3,268.4497	0.1594	0.0000	3,271.7967
Total											**0.0000**	**4,633.0736**	**4,633.0736**	**0.1694**	**0.0000**	**4,636.6301**

3.10 Paving 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6446	73.6446	0.0238	0.0000	74.1448
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6446**	**73.6446**	**0.0238**	**0.0000**	**74.1448**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.5817	10.5817	5.2000e-004	0.0000	10.5925
Total											**0.0000**	**10.5817**	**10.5817**	**5.2000e-004**	**0.0000**	**10.5925**

3.10 Paving 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6445	73.6445	0.0238	0.0000	74.1447
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6445**	**73.6445**	**0.0238**	**0.0000**	**74.1447**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.5817	10.5817	5.2000e-004	0.0000	10.5925
Total											**0.0000**	**10.5817**	**10.5817**	**5.2000e-004**	**0.0000**	**10.5925**

3.11 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.2800e-003	0.0000	18.6656
Total											**0.0000**	**18.6388**	**18.6388**	**1.2800e-003**	**0.0000**	**18.6656**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	619.7320	619.7320	0.0302	0.0000	620.3666
Total											**0.0000**	**619.7320**	**619.7320**	**0.0302**	**0.0000**	**620.3666**

3.11 Architectural Coating 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.2800e-003	0.0000	18.6656
Total											**0.0000**	**18.6387**	**18.6387**	**1.2800e-003**	**0.0000**	**18.6656**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	619.7320	619.7320	0.0302	0.0000	620.3666
Total											**0.0000**	**619.7320**	**619.7320**	**0.0302**	**0.0000**	**620.3666**

3.12 Fine Grading - Stabilization - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	227.4187	227.4187	0.0705	0.0000	228.8988
Total											**0.0000**	**227.4187**	**227.4187**	**0.0705**	**0.0000**	**228.8988**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	8.4412	8.4412	4.1000e-004	0.0000	8.4499
Total											**0.0000**	**8.4412**	**8.4412**	**4.1000e-004**	**0.0000**	**8.4499**

3.12 Fine Grading - Stabilization - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	227.4184	227.4184	0.0705	0.0000	228.8985
Total											**0.0000**	**227.4184**	**227.4184**	**0.0705**	**0.0000**	**228.8985**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	8.4412	8.4412	4.1000e-004	0.0000	8.4499
Total											**0.0000**	**8.4412**	**8.4412**	**4.1000e-004**	**0.0000**	**8.4499**

3.13 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.6891	177.6891	0.0425	0.0000	178.5818
Total											**0.0000**	**177.6891**	**177.6891**	**0.0425**	**0.0000**	**178.5818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,363.4984	1,363.4984	0.0102	0.0000	1,363.7123
Worker											0.0000	3,214.0070	3,214.0070	0.1526	0.0000	3,217.2110
Total											**0.0000**	**4,577.5054**	**4,577.5054**	**0.1628**	**0.0000**	**4,580.9234**

3.13 Building Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.6889	177.6889	0.0425	0.0000	178.5816
Total											**0.0000**	**177.6889**	**177.6889**	**0.0425**	**0.0000**	**178.5816**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,363.4984	1,363.4984	0.0102	0.0000	1,363.7123
Worker											0.0000	3,214.0070	3,214.0070	0.1526	0.0000	3,217.2110
Total											**0.0000**	**4,577.5054**	**4,577.5054**	**0.1628**	**0.0000**	**4,580.9234**

3.14 Paving 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6772	73.6772	0.0238	0.0000	74.1776
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6772**	**73.6772**	**0.0238**	**0.0000**	**74.1776**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.4054	10.4054	4.9000e-004	0.0000	10.4158
Total											**0.0000**	**10.4054**	**10.4054**	**4.9000e-004**	**0.0000**	**10.4158**

3.14 Paving 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6771	73.6771	0.0238	0.0000	74.1775
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6771**	**73.6771**	**0.0238**	**0.0000**	**74.1775**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.4054	10.4054	4.9000e-004	0.0000	10.4158
Total											**0.0000**	**10.4054**	**10.4054**	**4.9000e-004**	**0.0000**	**10.4158**

3.15 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.2100e-003	0.0000	18.6642
Total											**0.0000**	**18.6388**	**18.6388**	**1.2100e-003**	**0.0000**	**18.6642**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	609.4091	609.4091	0.0289	0.0000	610.0166
Total											**0.0000**	**609.4091**	**609.4091**	**0.0289**	**0.0000**	**610.0166**

3.15 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.2100e-003	0.0000	18.6642
Total											**0.0000**	**18.6387**	**18.6387**	**1.2100e-003**	**0.0000**	**18.6642**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	609.4091	609.4091	0.0289	0.0000	610.0166
Total											**0.0000**	**609.4091**	**609.4091**	**0.0289**	**0.0000**	**610.0166**

3.16 Building Construction 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.7504	177.7504	0.0422	0.0000	178.6370
Total											**0.0000**	**177.7504**	**177.7504**	**0.0422**	**0.0000**	**178.6370**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,357.0052	1,357.0052	9.1300e-003	0.0000	1,357.1969
Worker											0.0000	3,163.9931	3,163.9931	0.1465	0.0000	3,167.0696
Total											**0.0000**	**4,520.9983**	**4,520.9983**	**0.1556**	**0.0000**	**4,524.2665**

3.16 Building Construction 3 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.7501	177.7501	0.0422	0.0000	178.6368
Total											**0.0000**	**177.7501**	**177.7501**	**0.0422**	**0.0000**	**178.6368**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,357.0052	1,357.0052	9.1300e-003	0.0000	1,357.1969
Worker											0.0000	3,163.9931	3,163.9931	0.1465	0.0000	3,167.0696
Total											**0.0000**	**4,520.9983**	**4,520.9983**	**0.1556**	**0.0000**	**4,524.2665**

3.17 Paving 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6721	73.6721	0.0238	0.0000	74.1725
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6721**	**73.6721**	**0.0238**	**0.0000**	**74.1725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.2435	10.2435	4.7000e-004	0.0000	10.2535
Total											**0.0000**	**10.2435**	**10.2435**	**4.7000e-004**	**0.0000**	**10.2535**

3.17 Paving 3 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6720	73.6720	0.0238	0.0000	74.1724
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6720**	**73.6720**	**0.0238**	**0.0000**	**74.1724**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.2435	10.2435	4.7000e-004	0.0000	10.2535
Total											**0.0000**	**10.2435**	**10.2435**	**4.7000e-004**	**0.0000**	**10.2535**

3.18 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.1200e-003	0.0000	18.6622
Total											**0.0000**	**18.6388**	**18.6388**	**1.1200e-003**	**0.0000**	**18.6622**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	599.9260	599.9260	0.0278	0.0000	600.5093
Total											**0.0000**	**599.9260**	**599.9260**	**0.0278**	**0.0000**	**600.5093**

3.18 Architectural Coating 3 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.1200e-003	0.0000	18.6622
Total											**0.0000**	**18.6387**	**18.6387**	**1.1200e-003**	**0.0000**	**18.6622**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	599.9260	599.9260	0.0278	0.0000	600.5093
Total											**0.0000**	**599.9260**	**599.9260**	**0.0278**	**0.0000**	**600.5093**

3.19 Building Construction 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.7845	177.7845	0.0420	0.0000	178.6660
Total											**0.0000**	**177.7845**	**177.7845**	**0.0420**	**0.0000**	**178.6660**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,360.0212	1,360.0212	9.2400e-003	0.0000	1,360.2153
Worker											0.0000	3,140.6880	3,140.6880	0.1427	0.0000	3,143.6851
Total											**0.0000**	**4,500.7093**	**4,500.7093**	**0.1520**	**0.0000**	**4,503.9004**

3.19 Building Construction 4 - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.7843	177.7843	0.0420	0.0000	178.6658
Total											**0.0000**	**177.7843**	**177.7843**	**0.0420**	**0.0000**	**178.6658**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,360.0212	1,360.0212	9.2400e-003	0.0000	1,360.2153
Worker											0.0000	3,140.6880	3,140.6880	0.1427	0.0000	3,143.6851
Total											**0.0000**	**4,500.7093**	**4,500.7093**	**0.1520**	**0.0000**	**4,503.9004**

3.20 Paving 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6655	73.6655	0.0238	0.0000	74.1658
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6655**	**73.6655**	**0.0238**	**0.0000**	**74.1658**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.1681	10.1681	4.6000e-004	0.0000	10.1778
Total											**0.0000**	**10.1681**	**10.1681**	**4.6000e-004**	**0.0000**	**10.1778**

3.20 Paving 4 - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6654	73.6654	0.0238	0.0000	74.1657
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6654**	**73.6654**	**0.0238**	**0.0000**	**74.1657**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.1681	10.1681	4.6000e-004	0.0000	10.1778
Total											**0.0000**	**10.1681**	**10.1681**	**4.6000e-004**	**0.0000**	**10.1778**

3.21 Architectural Coating 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.0500e-003	0.0000	18.6608
Total											**0.0000**	**18.6388**	**18.6388**	**1.0500e-003**	**0.0000**	**18.6608**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	595.5071	595.5071	0.0271	0.0000	596.0754
Total											**0.0000**	**595.5071**	**595.5071**	**0.0271**	**0.0000**	**596.0754**

3.21 Architectural Coating 4 - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.0500e-003	0.0000	18.6608
Total											**0.0000**	**18.6387**	**18.6387**	**1.0500e-003**	**0.0000**	**18.6608**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	595.5071	595.5071	0.0271	0.0000	596.0754
Total											**0.0000**	**595.5071**	**595.5071**	**0.0271**	**0.0000**	**596.0754**

3.22 Building Construction 5 - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.8387	177.8387	0.0417	0.0000	178.7152
Total											**0.0000**	**177.8387**	**177.8387**	**0.0417**	**0.0000**	**178.7152**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,360.0892	1,360.0892	9.2800e-003	0.0000	1,360.2841
Worker											0.0000	3,100.0153	3,100.0153	0.1382	0.0000	3,102.9164
Total											**0.0000**	**4,460.1045**	**4,460.1045**	**0.1474**	**0.0000**	**4,463.2005**

3.22 Building Construction 5 - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.8385	177.8385	0.0417	0.0000	178.7150
Total											**0.0000**	**177.8385**	**177.8385**	**0.0417**	**0.0000**	**178.7150**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,360.089 2	1,360.089 2	9.2800e-003	0.0000	1,360.284 1
Worker											0.0000	3,100.015 3	3,100.015 3	0.1382	0.0000	3,102.916 4
Total											**0.0000**	**4,460.104 5**	**4,460.104 5**	**0.1474**	**0.0000**	**4,463.200 5**

3.23 Paving 5 - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6601	73.6601	0.0238	0.0000	74.1603
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6601**	**73.6601**	**0.0238**	**0.0000**	**74.1603**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.0364	10.0364	4.5000e-004	0.0000	10.0458
Total											**0.0000**	**10.0364**	**10.0364**	**4.5000e-004**	**0.0000**	**10.0458**

3.23 Paving 5 - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6600	73.6600	0.0238	0.0000	74.1603
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6600**	**73.6600**	**0.0238**	**0.0000**	**74.1603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.0364	10.0364	4.5000e-004	0.0000	10.0458
Total											**0.0000**	**10.0364**	**10.0364**	**4.5000e-004**	**0.0000**	**10.0458**

3.24 Architectural Coating 5 - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.0200e-003	0.0000	18.6601
Total											**0.0000**	**18.6388**	**18.6388**	**1.0200e-003**	**0.0000**	**18.6601**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	587.7951	587.7951	0.0262	0.0000	588.3452
Total											**0.0000**	**587.7951**	**587.7951**	**0.0262**	**0.0000**	**588.3452**

3.24 Architectural Coating 5 - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.0200e-003	0.0000	18.6601
Total											**0.0000**	**18.6387**	**18.6387**	**1.0200e-003**	**0.0000**	**18.6601**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	587.7951	587.7951	0.0262	0.0000	588.3452
Total											**0.0000**	**587.7951**	**587.7951**	**0.0262**	**0.0000**	**588.3452**

3.25 Building Construction 6 - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.8387	177.8387	0.0417	0.0000	178.7152
Total											**0.0000**	**177.8387**	**177.8387**	**0.0417**	**0.0000**	**178.7152**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,359.8063	1,359.8063	8.9800e-003	0.0000	1,359.9949
Worker											0.0000	3,064.3046	3,064.3046	0.1341	0.0000	3,067.1208
Total											**0.0000**	**4,424.1109**	**4,424.1109**	**0.1431**	**0.0000**	**4,427.1157**

3.25 Building Construction 6 - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.8385	177.8385	0.0417	0.0000	178.7150
Total											**0.0000**	**177.8385**	**177.8385**	**0.0417**	**0.0000**	**178.7150**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,359.8063	1,359.8063	8.9800e-003	0.0000	1,359.9949
Worker											0.0000	3,064.3046	3,064.3046	0.1341	0.0000	3,067.1208
Total											**0.0000**	**4,424.1109**	**4,424.1109**	**0.1431**	**0.0000**	**4,427.1157**

3.26 Paving 6 - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6601	73.6601	0.0238	0.0000	74.1603
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6601**	**73.6601**	**0.0238**	**0.0000**	**74.1603**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.9208	9.9208	4.3000e-004	0.0000	9.9299
Total											**0.0000**	**9.9208**	**9.9208**	**4.3000e-004**	**0.0000**	**9.9299**

3.26 Paving 6 - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6600	73.6600	0.0238	0.0000	74.1603
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6600**	**73.6600**	**0.0238**	**0.0000**	**74.1603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.9208	9.9208	4.3000e-004	0.0000	9.9299
Total											**0.0000**	**9.9208**	**9.9208**	**4.3000e-004**	**0.0000**	**9.9299**

3.27 Architectural Coating 6 - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.0200e-003	0.0000	18.6601
Total											**0.0000**	**18.6388**	**18.6388**	**1.0200e-003**	**0.0000**	**18.6601**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	581.0240	581.0240	0.0254	0.0000	581.5580
Total											**0.0000**	**581.0240**	**581.0240**	**0.0254**	**0.0000**	**581.5580**

3.27 Architectural Coating 6 - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.0200e-003	0.0000	18.6601
Total											**0.0000**	**18.6387**	**18.6387**	**1.0200e-003**	**0.0000**	**18.6601**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	581.0240	581.0240	0.0254	0.0000	581.5580
Total											**0.0000**	**581.0240**	**581.0240**	**0.0254**	**0.0000**	**581.5580**

3.28 Building Construction 7 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.8387	177.8387	0.0417	0.0000	178.7152
Total											**0.0000**	**177.8387**	**177.8387**	**0.0417**	**0.0000**	**178.7152**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,359.908 2	1,359.908 2	9.0000e-003	0.0000	1,360.097 2
Worker											0.0000	3,033.003 3	3,033.003 3	0.1305	0.0000	3,035.743 1
Total											**0.0000**	**4,392.911 4**	**4,392.911 4**	**0.1395**	**0.0000**	**4,395.840 3**

3.28 Building Construction 7 - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	177.8385	177.8385	0.0417	0.0000	178.7150
Total											**0.0000**	**177.8385**	**177.8385**	**0.0417**	**0.0000**	**178.7150**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,359.9082	1,359.9082	9.0000e-003	0.0000	1,360.0972
Worker											0.0000	3,033.0033	3,033.0033	0.1305	0.0000	3,035.7431
Total											**0.0000**	**4,392.9114**	**4,392.9114**	**0.1395**	**0.0000**	**4,395.8403**

3.29 Paving 7 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6601	73.6601	0.0238	0.0000	74.1603
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6601**	**73.6601**	**0.0238**	**0.0000**	**74.1603**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.8194	9.8194	4.2000e-004	0.0000	9.8283
Total											**0.0000**	**9.8194**	**9.8194**	**4.2000e-004**	**0.0000**	**9.8283**

3.29 Paving 7 - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	73.6600	73.6600	0.0238	0.0000	74.1603
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**73.6600**	**73.6600**	**0.0238**	**0.0000**	**74.1603**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.8194	9.8194	4.2000e-004	0.0000	9.8283
Total											**0.0000**	**9.8194**	**9.8194**	**4.2000e-004**	**0.0000**	**9.8283**

3.30 Architectural Coating 7 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6388	18.6388	1.0200e-003	0.0000	18.6601
Total											**0.0000**	**18.6388**	**18.6388**	**1.0200e-003**	**0.0000**	**18.6601**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	575.0889	575.0889	0.0247	0.0000	575.6084
Total											**0.0000**	**575.0889**	**575.0889**	**0.0247**	**0.0000**	**575.6084**

3.30 Architectural Coating 7 - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	18.6387	18.6387	1.0200e-003	0.0000	18.6601
Total											**0.0000**	**18.6387**	**18.6387**	**1.0200e-003**	**0.0000**	**18.6601**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	575.0889	575.0889	0.0247	0.0000	575.6084
Total											**0.0000**	**575.0889**	**575.0889**	**0.0247**	**0.0000**	**575.6084**

3.31 Building Construction 8 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	185.9222	185.9222	0.0436	0.0000	186.8386
Total											**0.0000**	**185.9222**	**185.9222**	**0.0436**	**0.0000**	**186.8386**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,421.7408	1,421.7408	9.3700e-003	0.0000	1,421.9375
Worker											0.0000	3,142.6201	3,142.6201	0.1330	0.0000	3,145.4137
Total											**0.0000**	**4,564.3608**	**4,564.3608**	**0.1424**	**0.0000**	**4,567.3512**

3.31 Building Construction 8 - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	185.9220	185.9220	0.0436	0.0000	186.8384
Total											**0.0000**	**185.9220**	**185.9220**	**0.0436**	**0.0000**	**186.8384**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,421.7408	1,421.7408	9.3700e-003	0.0000	1,421.9375
Worker											0.0000	3,142.6201	3,142.6201	0.1330	0.0000	3,145.4137
Total											**0.0000**	**4,564.3608**	**4,564.3608**	**0.1424**	**0.0000**	**4,567.3512**

3.32 Paving 8 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	76.9338	76.9338	0.0249	0.0000	77.4564
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**76.9338**	**76.9338**	**0.0249**	**0.0000**	**77.4564**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.1645	10.1645	4.3000e-004	0.0000	10.1735
Total											**0.0000**	**10.1645**	**10.1645**	**4.3000e-004**	**0.0000**	**10.1735**

3.32 Paving 8 - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	76.9337	76.9337	0.0249	0.0000	77.4563
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**76.9337**	**76.9337**	**0.0249**	**0.0000**	**77.4563**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.1645	10.1645	4.3000e-004	0.0000	10.1735
Total											**0.0000**	**10.1645**	**10.1645**	**4.3000e-004**	**0.0000**	**10.1735**

3.33 Architectural Coating 8 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	19.2771	19.2771	1.0500e-003	0.0000	19.2992
Total											**0.0000**	**19.2771**	**19.2771**	**1.0500e-003**	**0.0000**	**19.2992**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	589.4853	589.4853	0.0250	0.0000	590.0093
Total											**0.0000**	**589.4853**	**589.4853**	**0.0250**	**0.0000**	**590.0093**

3.33 Architectural Coating 8 - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	19.2770	19.2770	1.0500e-003	0.0000	19.2991
Total											**0.0000**	**19.2770**	**19.2770**	**1.0500e-003**	**0.0000**	**19.2991**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	589.4853	589.4853	0.0250	0.0000	590.0093
Total											**0.0000**	**589.4853**	**589.4853**	**0.0250**	**0.0000**	**590.0093**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Library	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Elementary School	18.50	10.10	7.90	65.00	30.00	5.00	63	25	12
General Light Industry	18.50	10.10	7.90	59.00	28.00	13.00	92	5	3
General Office Building	18.50	10.10	7.90	33.00	48.00	19.00	77	19	4
Health Club	18.50	10.10	7.90	16.90	64.10	19.00	52	39	9
Library	18.50	10.10	7.90	52.00	43.00	5.00	44	44	12
Regional Shopping Center	18.50	10.10	7.90	16.30	64.70	19.00	54	35	11
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.508453	0.058534	0.182003	0.128323	0.043028	0.007073	0.018375	0.041612	0.002788	0.003272	0.003888	0.000508	0.002143

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	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
	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Library	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Library	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Library	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Library	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	74.6020	74.6020	0.0712	0.0000	76.0973
Unmitigated											0.0000	74.6020	74.6020	0.0712	0.0000	76.0973

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	74.6020	74.6020	0.0712	0.0000	76.0973
Total											**0.0000**	**74.6020**	**74.6020**	**0.0712**	**0.0000**	**76.0973**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	74.6020	74.6020	0.0712	0.0000	76.0973
Total											**0.0000**	**74.6020**	**74.6020**	**0.0712**	**0.0000**	**76.0973**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Library	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Library	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Library	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Library	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Construction Stage 2

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	202.00	1000sqft	8.30	202,000.00	0
Elementary School	900.00	Student	13.00	71,500.00	0
General Light Industry	11.00	1000sqft	1.40	11,000.00	0
Health Club	3.20	1000sqft	1.50	3,200.00	0
Condo/Townhouse	1,174.00	Dwelling Unit	98.70	1,174,000.00	3698
Single Family Housing	270.00	Dwelling Unit	40.90	486,000.00	851
Regional Shopping Center	832.00	1000sqft	34.20	832,000.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2030

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project schedule. Residential population from project specific estimation.

Construction Phase - Based on project construction schedule.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Trips and VMT - Default Worker and Vendor Trips. Hauling Trips in the Grading Indirect phase account for hauling trips for vegetation.

Grading -

Vehicle Trips - Operational emissions calculated separately.

Woodstoves - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Solid Waste - Operational emissions calculated separately.

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	NumDays	220.00	231.00
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tblConstructionPhase	PhaseStartDate	4/2/2020	5/22/2020
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tblOffRoadEquipment	UsageHours	8.00	11.00

tblOffRoadEquipment	UsageHours	8.00	6.00
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018											0.0000	3,197.990 5	3,197.990 5	0.8937	0.0000	3,216.758 5
2019											0.0000	5,197.951 2	5,197.951 2	1.4435	0.0000	5,228.264 9
2020											0.0000	2,177.731 8	2,177.731 8	0.1796	0.0000	2,181.504 2
2021											0.0000	3,161.540 4	3,161.540 4	0.1713	0.0000	3,165.137 7
2022											0.0000	3,125.995 0	3,125.995 0	0.1665	0.0000	3,129.492 2
2023											0.0000	3,090.231 4	3,090.231 4	0.1615	0.0000	3,093.622 1
2024											0.0000	3,092.564 6	3,092.564 6	0.1594	0.0000	3,095.912 7
Total											**0.0000**	**23,044.00 48**	**23,044.00 48**	**3.1756**	**0.0000**	**23,110.69 24**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018											0.0000	3,197.9871	3,197.9871	0.8937	0.0000	3,216.7550
2019											0.0000	5,197.9458	5,197.9458	1.4435	0.0000	5,228.2595
2020											0.0000	2,177.7313	2,177.7313	0.1796	0.0000	2,181.5037
2021											0.0000	3,161.5401	3,161.5401	0.1713	0.0000	3,165.1374
2022											0.0000	3,125.9947	3,125.9947	0.1665	0.0000	3,129.4919
2023											0.0000	3,090.2310	3,090.2310	0.1615	0.0000	3,093.6218
2024											0.0000	3,092.5642	3,092.5642	0.1594	0.0000	3,095.9124
Total											**0.0000**	**23,043.9942**	**23,043.9942**	**3.1756**	**0.0000**	**23,110.6817**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	24.3733	24.3733	0.0233	0.0000	24.8626
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**24.3733**	**24.3733**	**0.0233**	**0.0000**	**24.8626**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	24.3733	24.3733	0.0233	0.0000	24.8626
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**24.3733**	**24.3733**	**0.0233**	**0.0000**	**24.8626**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading - Direct	Grading	7/1/2018	12/14/2018	5	120	
2	Grading - Indirect	Grading	8/1/2018	12/27/2019	5	368	
3	Improvements - Sewers	Trenching	2/1/2019	9/12/2019	5	160	
4	Improvements - Storm Drains	Trenching	9/13/2019	1/2/2020	5	80	
5	Improvements - Water	Trenching	1/3/2020	5/21/2020	5	100	
6	Paving	Paving	1/3/2020	4/1/2020	5	64	
7	Improvements - Streets	Trenching	5/22/2020	6/18/2020	5	20	
8	Building Construction 0	Building Construction	6/19/2020	12/31/2020	5	140	
9	Architectural Coating 0	Architectural Coating	8/21/2020	12/31/2020	5	95	
10	Building Construction 1	Building Construction	1/1/2021	11/4/2021	5	220	
11	Architectural Coating 1	Architectural Coating	1/1/2021	11/19/2021	5	231	
12	Building Construction 2	Building Construction	1/1/2022	11/4/2022	5	220	
13	Architectural Coating 2	Architectural Coating	1/1/2022	11/21/2022	5	231	
14	Building Construction 3	Building Construction	1/1/2023	11/3/2023	5	220	
15	Architectural Coating 3	Architectural Coating	1/1/2023	11/20/2023	5	231	
16	Building Construction 4	Building Construction	1/1/2024	11/4/2024	5	221	
17	Architectural Coating 4	Architectural Coating	1/1/2024	11/20/2024	5	233	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 3,361,500; Residential Outdoor: 1,120,500; Non-Residential Indoor: 1,679,550; Non-Residential Outdoor: 559,850 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading - Direct	Crawler Tractors	1	11.00	82	0.43
Grading - Direct	Crushing/Proc. Equipment	1	11.00	85	0.78
Grading - Direct	Excavators	1	11.00	157	0.38
Grading - Direct	Graders	1	11.00	162	0.41
Grading - Direct	Off-Highway Trucks	1	11.00	381	0.38
Grading - Direct	Other Material Handling Equipment	1	11.00	196	0.38
Grading - Direct	Rollers	2	11.00	84	0.38
Grading - Direct	Rubber Tired Dozers	1	11.00	358	0.40
Grading - Direct	Rubber Tired Loaders	1	11.00	200	0.36
Grading - Direct	Scrapers	6	11.00	356	0.48
Grading - Indirect	Crawler Tractors	4	11.00	82	0.43
Grading - Indirect	Excavators	2	11.00	157	0.38
Grading - Indirect	Graders	2	11.00	162	0.41
Grading - Indirect	Off-Highway Trucks	2	11.00	381	0.38
Grading - Indirect	Other Material Handling Equipment	6	11.00	196	0.38
Grading - Indirect	Rubber Tired Dozers	2	11.00	358	0.40
Grading - Indirect	Scrapers	9	11.00	356	0.48
Improvements - Sewers	Bore/Drill Rigs	1	11.00	205	0.50
Improvements - Sewers	Cranes	1	11.00	226	0.29
Improvements - Sewers	Excavators	2	11.00	157	0.38
Improvements - Sewers	Rollers	1	11.00	84	0.38
Improvements - Sewers	Rubber Tired Loaders	1	11.00	200	0.36
Improvements - Storm Drains	Cranes	1	11.00	226	0.29
Improvements - Storm Drains	Excavators	1	11.00	157	0.38
Improvements - Storm Drains	Graders	1	11.00	162	0.41
Improvements - Storm Drains	Rollers	1	11.00	84	0.38
Improvements - Storm Drains	Rubber Tired Loaders	1	11.00	200	0.36

Improvements - Water	Cranes	1	11.00	226	0.29
Improvements - Water	Excavators	2	11.00	157	0.38
Improvements - Water	Rollers	1	11.00	84	0.38
Improvements - Water	Rubber Tired Loaders	1	11.00	200	0.36
Paving	Pavers	1	8.00	89	0.42
Paving	Paving Equipment	2	8.00	82	0.36
Paving	Rollers	2	6.00	84	0.38
Improvements - Streets	Graders	1	11.00	162	0.41
Improvements - Streets	Pavers	1	11.00	89	0.42
Improvements - Streets	Rollers	1	11.00	84	0.38
Improvements - Streets	Scrapers	1	11.00	356	0.48
Building Construction 0	Cranes	1	7.00	226	0.29
Building Construction 0	Forklifts	3	8.00	89	0.20
Building Construction 0	Generator Sets	1	8.00	84	0.74
Building Construction 0	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 0	Welders	1	8.00	46	0.45
Architectural Coating 0	Air Compressors	1	6.00	78	0.48
Building Construction 1	Cranes	1	7.00	226	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Building Construction 2	Cranes	1	7.00	226	0.29
Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45

Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Construction 3	Cranes	1	7.00	226	0.29
Building Construction 3	Forklifts	3	8.00	89	0.20
Building Construction 3	Generator Sets	1	8.00	84	0.74
Building Construction 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 3	Welders	1	8.00	46	0.45
Architectural Coating 3	Air Compressors	1	6.00	78	0.48
Building Construction 4	Cranes	1	7.00	226	0.29
Building Construction 4	Forklifts	3	8.00	89	0.20
Building Construction 4	Generator Sets	1	8.00	84	0.74
Building Construction 4	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 4	Welders	1	8.00	46	0.45
Architectural Coating 4	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading - Direct	16	40.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Indirect	27	68.00	0.00	23,552.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Sewers	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Storm Drains	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Water	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets	4	10.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 0	9	1,309.00	338.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 0	1	262.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	1,309.00	338.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	262.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	1,309.00	338.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	262.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 3	9	1,309.00	338.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	262.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 4	9	1,309.00	338.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 4	1	262.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - Direct - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,143.703 5	1,143.703 5	0.3451	0.0000	1,150.950 9
Total											**0.0000**	**1,143.703 5**	**1,143.703 5**	**0.3451**	**0.0000**	**1,150.950 9**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	31.8849	31.8849	1.6600e-003	0.0000	31.9198
Total											**0.0000**	**31.8849**	**31.8849**	**1.6600e-003**	**0.0000**	**31.9198**

3.2 Grading - Direct - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,143.702 1	1,143.702 1	0.3451	0.0000	1,150.949 6
Total											**0.0000**	**1,143.702 1**	**1,143.702 1**	**0.3451**	**0.0000**	**1,150.949 6**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	31.8849	31.8849	1.6600e-003	0.0000	31.9198
Total											**0.0000**	**31.8849**	**31.8849**	**1.6600e-003**	**0.0000**	**31.9198**

3.3 Grading - Indirect - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,742.941 0	1,742.941 0	0.5426	0.0000	1,754.335 7
Total											**0.0000**	**1,742.941 0**	**1,742.941 0**	**0.5426**	**0.0000**	**1,754.335 7**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	230.2256	230.2256	1.7600e-003	0.0000	230.2626
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	49.2356	49.2356	2.5700e-003	0.0000	49.2895
Total											**0.0000**	**279.4612**	**279.4612**	**4.3300e-003**	**0.0000**	**279.5521**

3.3 Grading - Indirect - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,742.9390	1,742.9390	0.5426	0.0000	1,754.3336
Total											**0.0000**	**1,742.9390**	**1,742.9390**	**0.5426**	**0.0000**	**1,754.3336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	230.2256	230.2256	1.7600e-003	0.0000	230.2626
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	49.2356	49.2356	2.5700e-003	0.0000	49.2895
Total											**0.0000**	**279.4612**	**279.4612**	**4.3300e-003**	**0.0000**	**279.5521**

3.3 Grading - Indirect - 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	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	4,074.1202	4,074.1202	1.2890	0.0000	4,101.1894
Total											**0.0000**	**4,074.1202**	**4,074.1202**	**1.2890**	**0.0000**	**4,101.1894**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	535.9423	535.9423	4.1500e-003	0.0000	536.0293
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	112.4001	112.4001	5.7100e-003	0.0000	112.5199
Total											**0.0000**	**648.3424**	**648.3424**	**9.8600e-003**	**0.0000**	**648.5492**

3.3 Grading - Indirect - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	4,074.1154	4,074.1154	1.2890	0.0000	4,101.1845
Total											**0.0000**	**4,074.1154**	**4,074.1154**	**1.2890**	**0.0000**	**4,101.1845**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	535.9423	535.9423	4.1500e-003	0.0000	536.0293
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	112.4001	112.4001	5.7100e-003	0.0000	112.5199
Total											**0.0000**	**648.3424**	**648.3424**	**9.8600e-003**	**0.0000**	**648.5492**

3.4 Improvements - Sewers - 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	tons/yr										MT/yr					
Off-Road											0.0000	331.0129	331.0129	0.1047	0.0000	333.2122
Total											**0.0000**	**331.0129**	**331.0129**	**0.1047**	**0.0000**	**333.2122**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	15.3168	15.3168	7.8000e-004	0.0000	15.3332
Total											**0.0000**	**15.3168**	**15.3168**	**7.8000e-004**	**0.0000**	**15.3332**

3.4 Improvements - Sewers - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	331.0125	331.0125	0.1047	0.0000	333.2118
Total											**0.0000**	**331.0125**	**331.0125**	**0.1047**	**0.0000**	**333.2118**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	15.3168	15.3168	7.8000e-004	0.0000	15.3332
Total											**0.0000**	**15.3168**	**15.3168**	**7.8000e-004**	**0.0000**	**15.3332**

3.5 Improvements - Storm Drains - 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	tons/yr										MT/yr					
Off-Road											0.0000	122.6874	122.6874	0.0388	0.0000	123.5026
Total											**0.0000**	**122.6874**	**122.6874**	**0.0388**	**0.0000**	**123.5026**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	6.4714	6.4714	3.3000e-004	0.0000	6.4783
Total											**0.0000**	**6.4714**	**6.4714**	**3.3000e-004**	**0.0000**	**6.4783**

3.5 Improvements - Storm Drains - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	122.6873	122.6873	0.0388	0.0000	123.5024
Total											**0.0000**	**122.6873**	**122.6873**	**0.0388**	**0.0000**	**123.5024**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	6.4714	6.4714	3.3000e-004	0.0000	6.4783
Total											**0.0000**	**6.4714**	**6.4714**	**3.3000e-004**	**0.0000**	**6.4783**

3.5 Improvements - Storm Drains - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	3.0768	3.0768	1.0000e-003	0.0000	3.0977
Total											**0.0000**	**3.0768**	**3.0768**	**1.0000e-003**	**0.0000**	**3.0977**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.1593	0.1593	1.0000e-005	0.0000	0.1594
Total											**0.0000**	**0.1593**	**0.1593**	**1.0000e-005**	**0.0000**	**0.1594**

3.5 Improvements - Storm Drains - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	3.0768	3.0768	1.0000e-003	0.0000	3.0977
Total											**0.0000**	**3.0768**	**3.0768**	**1.0000e-003**	**0.0000**	**3.0977**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	0.1593	0.1593	1.0000e-005	0.0000	0.1594
Total											**0.0000**	**0.1593**	**0.1593**	**1.0000e-005**	**0.0000**	**0.1594**

3.6 Improvements - Water - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	149.9092	149.9092	0.0485	0.0000	150.9274
Total											**0.0000**	**149.9092**	**149.9092**	**0.0485**	**0.0000**	**150.9274**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	7.9631	7.9631	4.0000e-004	0.0000	7.9715
Total											**0.0000**	**7.9631**	**7.9631**	**4.0000e-004**	**0.0000**	**7.9715**

3.6 Improvements - Water - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	149.9090	149.9090	0.0485	0.0000	150.9272
Total											**0.0000**	**149.9090**	**149.9090**	**0.0485**	**0.0000**	**150.9272**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	7.9631	7.9631	4.0000e-004	0.0000	7.9715
Total											**0.0000**	**7.9631**	**7.9631**	**4.0000e-004**	**0.0000**	**7.9715**

3.7 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	34.9172	34.9172	0.0113	0.0000	35.1544
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**34.9172**	**34.9172**	**0.0113**	**0.0000**	**35.1544**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	5.0964	5.0964	2.6000e-004	0.0000	5.1018
Total											**0.0000**	**5.0964**	**5.0964**	**2.6000e-004**	**0.0000**	**5.1018**

3.7 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	34.9172	34.9172	0.0113	0.0000	35.1543
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**34.9172**	**34.9172**	**0.0113**	**0.0000**	**35.1543**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	5.0964	5.0964	2.6000e-004	0.0000	5.1018
Total											**0.0000**	**5.0964**	**5.0964**	**2.6000e-004**	**0.0000**	**5.1018**

3.8 Improvements - Streets - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	31.9278	31.9278	0.0103	0.0000	32.1447
Total											**0.0000**	**31.9278**	**31.9278**	**0.0103**	**0.0000**	**32.1447**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.2251	1.2251	6.0000e-005	0.0000	1.2264
Total											**0.0000**	**1.2251**	**1.2251**	**6.0000e-005**	**0.0000**	**1.2264**

3.8 Improvements - Streets - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	31.9278	31.9278	0.0103	0.0000	32.1446
Total											**0.0000**	**31.9278**	**31.9278**	**0.0103**	**0.0000**	**32.1446**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.2251	1.2251	6.0000e-005	0.0000	1.2264
Total											**0.0000**	**1.2251**	**1.2251**	**6.0000e-005**	**0.0000**	**1.2264**

3.9 Building Construction 0 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	161.4549	161.4549	0.0393	0.0000	162.2810
Total											**0.0000**	**161.4549**	**161.4549**	**0.0393**	**0.0000**	**162.2810**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	494.8523	494.8523	3.5900e-003	0.0000	494.9277
Worker											0.0000	1,122.5581	1,122.5581	0.0563	0.0000	1,123.7404
Total											**0.0000**	**1,617.4103**	**1,617.4103**	**0.0599**	**0.0000**	**1,618.6682**

3.9 Building Construction 0 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	161.4547	161.4547	0.0393	0.0000	162.2808
Total											**0.0000**	**161.4547**	**161.4547**	**0.0393**	**0.0000**	**162.2808**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	494.8523	494.8523	3.5900e-003	0.0000	494.9277
Worker											0.0000	1,122.5581	1,122.5581	0.0563	0.0000	1,123.7404
Total											**0.0000**	**1,617.4103**	**1,617.4103**	**0.0599**	**0.0000**	**1,618.6682**

3.10 Architectural Coating 0 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	12.1280	12.1280	9.4000e-004	0.0000	12.1477
Total											**0.0000**	**12.1280**	**12.1280**	**9.4000e-004**	**0.0000**	**12.1477**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	152.4636	152.4636	7.6500e-003	0.0000	152.6241
Total											**0.0000**	**152.4636**	**152.4636**	**7.6500e-003**	**0.0000**	**152.6241**

3.10 Architectural Coating 0 - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	12.1279	12.1279	9.4000e-004	0.0000	12.1477
Total											**0.0000**	**12.1279**	**12.1279**	**9.4000e-004**	**0.0000**	**12.1477**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	152.4636	152.4636	7.6500e-003	0.0000	152.6241
Total											**0.0000**	**152.4636**	**152.4636**	**7.6500e-003**	**0.0000**	**152.6241**

3.11 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.7450	253.7450	0.0611	0.0000	255.0288
Total											**0.0000**	**253.7450**	**253.7450**	**0.0611**	**0.0000**	**255.0288**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	777.0265	777.0265	5.6800e-003	0.0000	777.1457
Worker											0.0000	1,736.3639	1,736.3639	0.0847	0.0000	1,738.1420
Total											**0.0000**	**2,513.3903**	**2,513.3903**	**0.0904**	**0.0000**	**2,515.2877**

3.11 Building Construction 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.7447	253.7447	0.0611	0.0000	255.0285
Total											**0.0000**	**253.7447**	**253.7447**	**0.0611**	**0.0000**	**255.0285**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	777.0265	777.0265	5.6800e-003	0.0000	777.1457
Worker											0.0000	1,736.3639	1,736.3639	0.0847	0.0000	1,738.1420
Total											**0.0000**	**2,513.3903**	**2,513.3903**	**0.0904**	**0.0000**	**2,515.2877**

3.12 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.4901	29.4901	2.0200e-003	0.0000	29.5326
Total											**0.0000**	**29.4901**	**29.4901**	**2.0200e-003**	**0.0000**	**29.5326**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	364.9150	364.9150	0.0178	0.0000	365.2887
Total											**0.0000**	**364.9150**	**364.9150**	**0.0178**	**0.0000**	**365.2887**

3.12 Architectural Coating 1 - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.4901	29.4901	2.0200e-003	0.0000	29.5326
Total											**0.0000**	**29.4901**	**29.4901**	**2.0200e-003**	**0.0000**	**29.5326**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	364.9150	364.9150	0.0178	0.0000	365.2887
Total											**0.0000**	**364.9150**	**364.9150**	**0.0178**	**0.0000**	**365.2887**

3.13 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.8416	253.8416	0.0607	0.0000	255.1168
Total											**0.0000**	**253.8416**	**253.8416**	**0.0607**	**0.0000**	**255.1168**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	776.3855	776.3855	5.8000e-003	0.0000	776.5074
Worker											0.0000	1,707.4412	1,707.4412	0.0811	0.0000	1,709.1434
Total											**0.0000**	**2,483.8268**	**2,483.8268**	**0.0869**	**0.0000**	**2,485.6507**

3.13 Building Construction 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.8413	253.8413	0.0607	0.0000	255.1165
Total											**0.0000**	**253.8413**	**253.8413**	**0.0607**	**0.0000**	**255.1165**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	776.3855	776.3855	5.8000e-003	0.0000	776.5074
Worker											0.0000	1,707.4412	1,707.4412	0.0811	0.0000	1,709.1434
Total											**0.0000**	**2,483.8268**	**2,483.8268**	**0.0869**	**0.0000**	**2,485.6507**

3.14 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.4901	29.4901	1.9200e-003	0.0000	29.5304
Total											**0.0000**	**29.4901**	**29.4901**	**1.9200e-003**	**0.0000**	**29.5304**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	358.8366	358.8366	0.0170	0.0000	359.1943
Total											**0.0000**	**358.8366**	**358.8366**	**0.0170**	**0.0000**	**359.1943**

3.14 Architectural Coating 2 - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.4901	29.4901	1.9200e-003	0.0000	29.5304
Total											**0.0000**	**29.4901**	**29.4901**	**1.9200e-003**	**0.0000**	**29.5304**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	358.8366	358.8366	0.0170	0.0000	359.1943
Total											**0.0000**	**358.8366**	**358.8366**	**0.0170**	**0.0000**	**359.1943**

3.15 Building Construction 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.9291	253.9291	0.0603	0.0000	255.1957
Total											**0.0000**	**253.9291**	**253.9291**	**0.0603**	**0.0000**	**255.1957**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	772.6883	772.6883	5.2000e-003	0.0000	772.7974
Worker											0.0000	1,680.8713	1,680.8713	0.0778	0.0000	1,682.5057
Total											**0.0000**	**2,453.5596**	**2,453.5596**	**0.0830**	**0.0000**	**2,455.3032**

3.15 Building Construction 3 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	253.9288	253.9288	0.0603	0.0000	255.1954
Total											**0.0000**	**253.9288**	**253.9288**	**0.0603**	**0.0000**	**255.1954**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	772.6883	772.6883	5.2000e-003	0.0000	772.7974
Worker											0.0000	1,680.8713	1,680.8713	0.0778	0.0000	1,682.5057
Total											**0.0000**	**2,453.5596**	**2,453.5596**	**0.0830**	**0.0000**	**2,455.3032**

3.16 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.4901	29.4901	1.7600e-003	0.0000	29.5271
Total											**0.0000**	**29.4901**	**29.4901**	**1.7600e-003**	**0.0000**	**29.5271**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	353.2526	353.2526	0.0164	0.0000	353.5961
Total											**0.0000**	**353.2526**	**353.2526**	**0.0164**	**0.0000**	**353.5961**

3.16 Architectural Coating 3 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.4901	29.4901	1.7600e-003	0.0000	29.5271
Total											**0.0000**	**29.4901**	**29.4901**	**1.7600e-003**	**0.0000**	**29.5271**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	353.2526	353.2526	0.0164	0.0000	353.5961
Total											**0.0000**	**353.2526**	**353.2526**	**0.0164**	**0.0000**	**353.5961**

3.17 Building Construction 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	255.1323	255.1323	0.0602	0.0000	256.3974
Total											**0.0000**	**255.1323**	**255.1323**	**0.0602**	**0.0000**	**256.3974**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	777.9256	777.9256	5.2900e-003	0.0000	778.0367
Worker											0.0000	1,676.0746	1,676.0746	0.0762	0.0000	1,677.6740
Total											**0.0000**	**2,454.0002**	**2,454.0002**	**0.0815**	**0.0000**	**2,455.7107**

3.17 Building Construction 4 - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	255.1320	255.1320	0.0602	0.0000	256.3971
Total											**0.0000**	**255.1320**	**255.1320**	**0.0602**	**0.0000**	**256.3971**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	777.9256	777.9256	5.2900e-003	0.0000	778.0367
Worker											0.0000	1,676.0746	1,676.0746	0.0762	0.0000	1,677.6740
Total											**0.0000**	**2,454.0002**	**2,454.0002**	**0.0815**	**0.0000**	**2,455.7107**

3.18 Architectural Coating 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.7454	29.7454	1.6700e-003	0.0000	29.7806
Total											**0.0000**	**29.7454**	**29.7454**	**1.6700e-003**	**0.0000**	**29.7806**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	353.6866	353.6866	0.0161	0.0000	354.0241
Total											**0.0000**	**353.6866**	**353.6866**	**0.0161**	**0.0000**	**354.0241**

3.18 Architectural Coating 4 - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	29.7454	29.7454	1.6700e-003	0.0000	29.7805
Total											**0.0000**	**29.7454**	**29.7454**	**1.6700e-003**	**0.0000**	**29.7805**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	353.6866	353.6866	0.0161	0.0000	354.0241
Total											**0.0000**	**353.6866**	**353.6866**	**0.0161**	**0.0000**	**354.0241**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Elementary School	18.50	10.10	7.90	65.00	30.00	5.00	63	25	12
General Light Industry	18.50	10.10	7.90	59.00	28.00	13.00	92	5	3
General Office Building	18.50	10.10	7.90	33.00	48.00	19.00	77	19	4
Health Club	18.50	10.10	7.90	16.90	64.10	19.00	52	39	9
Regional Shopping Center	18.50	10.10	7.90	16.30	64.70	19.00	54	35	11
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.508453	0.058534	0.182003	0.128323	0.043028	0.007073	0.018375	0.041612	0.002788	0.003272	0.003888	0.000508	0.002143

4.4 Fleet Mix

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	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0											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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0											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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	24.3733	24.3733	0.0233	0.0000	24.8626
Unmitigated											0.0000	24.3733	24.3733	0.0233	0.0000	24.8626

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	24.3733	24.3733	0.0233	0.0000	24.8626
Total											**0.0000**	**24.3733**	**24.3733**	**0.0233**	**0.0000**	**24.8626**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	24.3733	24.3733	0.0233	0.0000	24.8626
Total											**0.0000**	**24.3733**	**24.3733**	**0.0233**	**0.0000**	**24.8626**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Construction Stage 3

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	76.00	1000sqft	3.10	76,000.00	0
Office Park	301.00	1000sqft	12.40	301,000.00	0
Elementary School	900.00	Student	13.00	71,500.00	0
High School	2,500.00	Student	55.00	142.00	0
Junior High School	900.00	Student	13.00	71,500.00	0
Industrial Park	703.00	1000sqft	28.90	703,000.00	0
Health Club	15.70	1000sqft	7.60	15,700.00	0
Condo/Townhouse	3,966.00	Dwelling Unit	333.30	3,966,000.00	12493
Single Family Housing	3,125.00	Dwelling Unit	473.90	5,625,000.00	9844
Regional Shopping Center	451.00	1000sqft	18.50	451,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Based on project construction schedule.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Trips and VMT - Default Worker and Vendor Trips. Hauling trips in the Grading Indirect phase account for hauling trips for vegetation.

Grading -

Vehicle Trips - Operational emissions calculated separately.

Woodstoves - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Solid Waste - Operational emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1,100.00	2,321.00
tblConstructionPhase	NumDays	15,500.00	2,408.00
tblConstructionPhase	NumDays	1,550.00	80.00
tblConstructionPhase	NumDays	1,550.00	392.00
tblConstructionPhase	NumDays	1,550.00	462.00

tblConstructionPhase	NumDays	1,550.00	40.00
tblConstructionPhase	NumDays	1,100.00	768.00
tblConstructionPhase	PhaseEndDate	8/10/2033	12/31/2030
tblConstructionPhase	PhaseEndDate	6/17/2031	12/31/2030
tblConstructionPhase	PhaseEndDate	4/8/2025	12/2/2025
tblConstructionPhase	PhaseEndDate	1/27/2022	10/7/2021
tblConstructionPhase	PhaseEndDate	10/6/2023	7/26/2023
tblConstructionPhase	PhaseEndDate	12/9/2033	9/17/2024
tblConstructionPhase	PhaseEndDate	9/20/2023	10/6/2023
tblConstructionPhase	PhaseEndDate	12/29/2022	3/24/2022
tblConstructionPhase	PhaseEndDate	7/15/2031	10/7/2022
tblConstructionPhase	PhaseStartDate	9/18/2024	2/8/2022
tblConstructionPhase	PhaseStartDate	3/25/2022	10/8/2021
tblConstructionPhase	PhaseStartDate	10/7/2023	6/1/2024
tblConstructionPhase	PhaseStartDate	4/22/2020	1/1/2020
tblConstructionPhase	PhaseStartDate	8/12/2023	6/1/2023
tblConstructionPhase	PhaseStartDate	1/1/2031	10/8/2021
tblConstructionPhase	PhaseStartDate	7/27/2023	8/14/2023
tblConstructionPhase	PhaseStartDate	10/8/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	1/1/2031	3/26/2022
tblEnergyUse	LightingElect	1,001.10	0.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	4.25	0.00

tblEnergyUse	LightingElect	7.04	0.00
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	3,126.97	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	0.00
tblEnergyUse	NT24NG	2,951.00	0.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	0.39	0.00
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tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	1.08	0.00
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tblEnergyUse	T24E	269.81	0.00
tblEnergyUse	T24E	2.13	0.00
tblEnergyUse	T24E	5.62	0.00
tblEnergyUse	T24E	2.75	0.00
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tblEnergyUse	T24E	5.62	0.00

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tblEnergyUse	T24NG	11,455.03	0.00
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tblEnergyUse	T24NG	23,944.02	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
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tblFireplaces	NumberNoFireplace	312.50	0.00
tblFireplaces	NumberWood	198.30	0.00
tblFireplaces	NumberWood	156.25	0.00
tblLandUse	LandUseSquareFeet	75,243.03	71,500.00
tblLandUse	LandUseSquareFeet	331,652.44	142.00

tblLandUse	LandUseSquareFeet	105,805.52	71,500.00
tblLandUse	LotAcreage	1.74	3.10
tblLandUse	LotAcreage	6.91	12.40
tblLandUse	LotAcreage	1.73	13.00
tblLandUse	LotAcreage	7.61	55.00
tblLandUse	LotAcreage	2.43	13.00
tblLandUse	LotAcreage	16.14	28.90
tblLandUse	LotAcreage	0.36	7.60
tblLandUse	LotAcreage	247.88	333.30
tblLandUse	LotAcreage	1,014.61	473.90
tblLandUse	LotAcreage	10.35	18.50
tblLandUse	Population	11,343.00	12,493.00
tblLandUse	Population	8,938.00	9,844.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	12.00

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tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2030
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1,824.36	0.00

tblSolidWaste	SolidWasteGenerationRate	164.25	0.00
tblSolidWaste	SolidWasteGenerationRate	70.68	0.00
tblSolidWaste	SolidWasteGenerationRate	89.49	0.00
tblSolidWaste	SolidWasteGenerationRate	456.25	0.00
tblSolidWaste	SolidWasteGenerationRate	871.72	0.00
tblSolidWaste	SolidWasteGenerationRate	164.25	0.00
tblSolidWaste	SolidWasteGenerationRate	279.93	0.00
tblSolidWaste	SolidWasteGenerationRate	473.55	0.00
tblSolidWaste	SolidWasteGenerationRate	4,036.04	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	25,088.00
tblTripsAndVMT	HaulingTripNumber	0.00	29,568.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	2.37	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	0.61	0.00
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	10.08	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.98	0.00
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tblVehicleTrips	SU_TR	0.25	0.00
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tblVehicleTrips	WD_TR	6.59	0.00

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tblVehicleTrips	WD_TR	9.57	0.00
tblWater	IndoorWaterUseRate	258,400,865.61	0.00
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tblWater	IndoorWaterUseRate	13,507,764.85	0.00
tblWater	IndoorWaterUseRate	928,547.36	0.00
tblWater	IndoorWaterUseRate	11,012,400.00	0.00
tblWater	IndoorWaterUseRate	162,568,750.00	0.00
tblWater	IndoorWaterUseRate	2,181,816.00	0.00
tblWater	IndoorWaterUseRate	53,497,858.15	0.00
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tblWater	IndoorWaterUseRate	203,606,330.07	0.00
tblWater	OutdoorWaterUseRate	162,904,893.54	0.00
tblWater	OutdoorWaterUseRate	5,610,384.00	0.00
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tblWater	OutdoorWaterUseRate	128,360,512.43	0.00

tblWoodstoves	NumberCatalytic	198.30	0.00
tblWoodstoves	NumberCatalytic	156.25	0.00
tblWoodstoves	NumberNoncatalytic	198.30	0.00
tblWoodstoves	NumberNoncatalytic	156.25	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020											0.0000	10,947.2778	10,947.2778	3.2648	0.0000	11,015.8386
2021											0.0000	11,732.2877	11,732.2877	2.9141	0.0000	11,793.4841
2022											0.0000	14,029.1083	14,029.1083	1.2255	0.0000	14,054.8431
2023											0.0000	14,567.2157	14,567.2157	1.3644	0.0000	14,595.8690
2024											0.0000	16,879.1194	16,879.1194	2.0129	0.0000	16,921.3898
2025											0.0000	19,373.5682	19,373.5682	2.7906	0.0000	19,432.1714
2026											0.0000	11,701.6321	11,701.6321	0.5274	0.0000	11,712.7082
2027											0.0000	11,618.5309	11,618.5309	0.5178	0.0000	11,629.4045
2028											0.0000	11,502.4138	11,502.4138	0.5072	0.0000	11,513.0646
2029											0.0000	11,484.1160	11,484.1160	0.5007	0.0000	11,494.6302
2030											0.0000	11,511.9622	11,511.9622	0.3744	0.0000	11,519.8236
Total											**0.0000**	**145,347.2322**	**145,347.2322**	**15.9998**	**0.0000**	**145,683.2272**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020											0.0000	10,947.2658	10,947.2658	3.2648	0.0000	11,015.8265
2021											0.0000	11,732.2773	11,732.2773	2.9141	0.0000	11,793.4736
2022											0.0000	14,029.1051	14,029.1051	1.2255	0.0000	14,054.8398
2023											0.0000	14,567.2118	14,567.2118	1.3644	0.0000	14,595.8651
2024											0.0000	16,879.1132	16,879.1132	2.0129	0.0000	16,921.3836
2025											0.0000	19,373.5591	19,373.5591	2.7906	0.0000	19,432.1622
2026											0.0000	11,701.6312	11,701.6312	0.5274	0.0000	11,712.7073
2027											0.0000	11,618.5300	11,618.5300	0.5178	0.0000	11,629.4037
2028											0.0000	11,502.4129	11,502.4129	0.5072	0.0000	11,513.0637
2029											0.0000	11,484.1151	11,484.1151	0.5007	0.0000	11,494.6293
2030											0.0000	11,511.9612	11,511.9612	0.3744	0.0000	11,519.8226
Total											**0.0000**	**145,347.1828**	**145,347.1828**	**15.9997**	**0.0000**	**145,683.1775**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	119.5969	119.5969	0.1142	0.0000	121.9947
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**119.5969**	**119.5969**	**0.1142**	**0.0000**	**121.9947**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	119.5969	119.5969	0.1142	0.0000	121.9947
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**119.5969**	**119.5969**	**0.1142**	**0.0000**	**121.9947**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading - Direct (Phase 1)	Grading	1/1/2020	4/21/2020	5	80	
2	Grading - Indirect (Phase 1)	Grading	1/1/2020	10/7/2021	5	462	
3	Improvements - Sewers	Trenching	1/1/2021	3/24/2022	5	320	
4	Building Construction	Building Construction	10/8/2021	12/31/2030	5	2408	
5	Paving	Paving	10/8/2021	9/17/2024	5	768	
6	Architectural Coating	Architectural Coating	2/8/2022	12/31/2030	5	2321	
7	Improvements - Storm Drains	Trenching	3/26/2022	10/7/2022	5	140	
8	Improvements - Water	Trenching	10/8/2022	8/11/2023	5	220	
9	Grading - Direct (Phase 2)	Grading	6/1/2023	7/26/2023	5	40	
10	Improvements - Streets	Trenching	8/14/2023	10/6/2023	5	40	
11	Grading - Indirect (Phase 2)	Grading	6/1/2024	12/2/2025	5	392	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 19,421,775; Residential Outdoor: 6,473,925; Non-Residential Indoor: 2,534,763; Non-Residential Outdoor: 844,921 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading - Direct (Phase 1)	Crawler Tractors	5	12.00	82	0.43
Grading - Direct (Phase 1)	Crushing/Proc. Equipment	4	12.00	85	0.78
Grading - Direct (Phase 1)	Excavators	5	12.00	157	0.38
Grading - Direct (Phase 1)	Graders	5	12.00	162	0.41
Grading - Direct (Phase 1)	Off-Highway Trucks	4	12.00	381	0.38
Grading - Direct (Phase 1)	Other Material Handling Equipment	9	12.00	196	0.40

Grading - Direct (Phase 1)	Rollers	5	12.00	84	0.38
Grading - Direct (Phase 1)	Rubber Tired Dozers	5	12.00	358	0.40
Grading - Direct (Phase 1)	Rubber Tired Loaders	5	12.00	200	0.36
Grading - Direct (Phase 1)	Scrapers	12	12.00	356	0.48
Grading - Indirect (Phase 1)	Crawler Tractors	7	12.00	82	0.43
Grading - Indirect (Phase 1)	Excavators	5	12.00	157	0.38
Grading - Indirect (Phase 1)	Graders	5	12.00	162	0.41
Grading - Indirect (Phase 1)	Off-Highway Trucks	5	12.00	381	0.38
Grading - Indirect (Phase 1)	Other Material Handling Equipment	9	12.00	196	0.40
Grading - Indirect (Phase 1)	Rubber Tired Dozers	5	12.00	358	0.40
Grading - Indirect (Phase 1)	Scrapers	12	12.00	356	0.48
Improvements - Sewers	Bore/Drill Rigs	4	12.00	206	0.50
Improvements - Sewers	Cranes	4	12.00	226	0.29
Improvements - Sewers	Excavators	4	12.00	157	0.38
Improvements - Sewers	Rubber Tired Loaders	4	12.00	200	0.36
Improvements - Sewers	Scrapers	4	12.00	356	0.48
Building Construction	Cranes	3	5.00	226	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	3	6.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	7.00	97	0.37
Building Construction	Welders	4	7.00	46	0.45
Paving	Cement and Mortar Mixers	4	5.00	9	0.56
Paving	Pavers	1	8.00	89	0.42
Paving	Paving Equipment	2	7.00	82	0.36
Paving	Rollers	2	5.00	84	0.38
Architectural Coating	Air Compressors	2	6.00	78	0.48
Improvements - Storm Drains	Cranes	4	12.00	226	0.29
Improvements - Storm Drains	Excavators	4	12.00	157	0.36

Improvements - Storm Drains	Graders	4	12.00	162	0.41
Improvements - Storm Drains	Rollers	4	12.00	84	0.38
Improvements - Storm Drains	Rubber Tired Loaders	4	12.00	200	0.36
Improvements - Water	Cranes	4	12.00	226	0.29
Improvements - Water	Excavators	4	12.00	157	0.36
Improvements - Water	Rollers	4	12.00	84	0.38
Improvements - Water	Rubber Tired Loaders	4	12.00	200	0.36
Grading - Direct (Phase 2)	Crawler Tractors	5	12.00	82	0.43
Grading - Direct (Phase 2)	Crushing/Proc. Equipment	4	12.00	85	0.78
Grading - Direct (Phase 2)	Excavators	5	12.00	157	0.38
Grading - Direct (Phase 2)	Graders	5	12.00	162	0.41
Grading - Direct (Phase 2)	Off-Highway Trucks	4	12.00	381	0.38
Grading - Direct (Phase 2)	Other Material Handling Equipment	9	12.00	196	0.40
Grading - Direct (Phase 2)	Rollers	5	12.00	84	0.38
Grading - Direct (Phase 2)	Rubber Tired Dozers	5	12.00	358	0.40
Grading - Direct (Phase 2)	Rubber Tired Loaders	5	12.00	200	0.36
Grading - Direct (Phase 2)	Scrapers	12	12.00	356	0.48
Improvements - Streets	Graders	4	12.00	162	0.41
Improvements - Streets	Pavers	4	12.00	89	0.42
Improvements - Streets	Rollers	4	12.00	84	0.38
Improvements - Streets	Scrapers	4	12.00	356	0.48
Grading - Indirect (Phase 2)	Crawler Tractors	7	12.00	82	0.43
Grading - Indirect (Phase 2)	Excavators	5	12.00	157	0.38
Grading - Indirect (Phase 2)	Graders	5	12.00	162	0.41
Grading - Indirect (Phase 2)	Off-Highway Trucks	5	12.00	381	0.38
Grading - Indirect (Phase 2)	Other Material Handling Equipment	9	12.00	196	0.40
Grading - Indirect (Phase 2)	Rubber Tired Dozers	5	12.00	358	0.40
Grading - Indirect (Phase 2)	Scrapers	12	12.00	356	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading - Direct (Phase 1)	59	148.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Indirect (Phase 1)	48	120.00	0.00	29,568.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Sewers	20	50.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	22	4,607.00	1,035.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	921.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Storm Drains	20	50.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Water	16	40.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Direct (Phase 2)	59	148.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets	16	40.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Indirect (Phase 2)	48	120.00	0.00	25,088.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - Direct (Phase 1) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,590.2990	2,590.2990	0.8017	0.0000	2,607.1337
Total											**0.0000**	**2,590.2990**	**2,590.2990**	**0.8017**	**0.0000**	**2,607.1337**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	72.5259	72.5259	3.6400e-003	0.0000	72.6022
Total											**0.0000**	**72.5259**	**72.5259**	**3.6400e-003**	**0.0000**	**72.6022**

3.2 Grading - Direct (Phase 1) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,590.2959	2,590.2959	0.8017	0.0000	2,607.1306
Total											**0.0000**	**2,590.2959**	**2,590.2959**	**0.8017**	**0.0000**	**2,607.1306**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	72.5259	72.5259	3.6400e-003	0.0000	72.6022
Total											**0.0000**	**72.5259**	**72.5259**	**3.6400e-003**	**0.0000**	**72.6022**

3.3 Grading - Indirect (Phase 1) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	7,561.832 0	7,561.832 0	2.4457	0.0000	7,613.190 6
Total											**0.0000**	**7,561.832 0**	**7,561.832 0**	**2.4457**	**0.0000**	**7,613.190 6**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	530.0355	530.0355	4.2000e-003	0.0000	530.1237
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	192.5855	192.5855	9.6600e-003	0.0000	192.7884
Total											**0.0000**	**722.6211**	**722.6211**	**0.0139**	**0.0000**	**722.9121**

3.3 Grading - Indirect (Phase 1) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	7,561.8230	7,561.8230	2.4457	0.0000	7,613.1816
Total											**0.0000**	**7,561.8230**	**7,561.8230**	**2.4457**	**0.0000**	**7,613.1816**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	530.0355	530.0355	4.2000e-003	0.0000	530.1237
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	192.5855	192.5855	9.6600e-003	0.0000	192.7884
Total											**0.0000**	**722.6211**	**722.6211**	**0.0139**	**0.0000**	**722.9121**

3.3 Grading - Indirect (Phase 1) - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	5,772.9271	5,772.9271	1.8671	0.0000	5,812.1358
Total											**0.0000**	**5,772.9271**	**5,772.9271**	**1.8671**	**0.0000**	**5,812.1358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	404.3602	404.3602	3.2600e-003	0.0000	404.4287
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	144.7070	144.7070	7.0600e-003	0.0000	144.8552
Total											**0.0000**	**549.0673**	**549.0673**	**0.0103**	**0.0000**	**549.2840**

3.3 Grading - Indirect (Phase 1) - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	5,772.9203	5,772.9203	1.8671	0.0000	5,812.1289
Total											**0.0000**	**5,772.9203**	**5,772.9203**	**1.8671**	**0.0000**	**5,812.1289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	404.3602	404.3602	3.2600e-003	0.0000	404.4287
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	144.7070	144.7070	7.0600e-003	0.0000	144.8552
Total											**0.0000**	**549.0673**	**549.0673**	**0.0103**	**0.0000**	**549.2840**

3.4 Improvements - Sewers - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	2,780.232 3	2,780.232 3	0.8992	0.0000	2,799.115 2
Total											**0.0000**	**2,780.232 3**	**2,780.232 3**	**0.8992**	**0.0000**	**2,799.115 2**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	78.6845	78.6845	3.8400e-003	0.0000	78.7650
Total											**0.0000**	**78.6845**	**78.6845**	**3.8400e-003**	**0.0000**	**78.7650**

3.4 Improvements - Sewers - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	2,780.2290	2,780.2290	0.8992	0.0000	2,799.1118
Total											**0.0000**	**2,780.2290**	**2,780.2290**	**0.8992**	**0.0000**	**2,799.1118**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	78.6845	78.6845	3.8400e-003	0.0000	78.7650
Total											**0.0000**	**78.6845**	**78.6845**	**3.8400e-003**	**0.0000**	**78.7650**

3.4 Improvements - Sewers - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	629.1325	629.1325	0.2035	0.0000	633.4054
Total											**0.0000**	**629.1325**	**629.1325**	**0.2035**	**0.0000**	**633.4054**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	17.4906	17.4906	8.3000e-004	0.0000	17.5081
Total											**0.0000**	**17.4906**	**17.4906**	**8.3000e-004**	**0.0000**	**17.5081**

3.4 Improvements - Sewers - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	629.1317	629.1317	0.2035	0.0000	633.4047
Total											**0.0000**	**629.1317**	**629.1317**	**0.2035**	**0.0000**	**633.4047**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	17.4906	17.4906	8.3000e-004	0.0000	17.5081
Total											**0.0000**	**17.4906**	**17.4906**	**8.3000e-004**	**0.0000**	**17.5081**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	155.5246	155.5246	0.0359	0.0000	156.2775
Total											**0.0000**	**155.5246**	**155.5246**	**0.0359**	**0.0000**	**156.2775**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	659.7306	659.7306	4.8200e-003	0.0000	659.8318
Worker											0.0000	1,694.4411	1,694.4411	0.0826	0.0000	1,696.1762
Total											**0.0000**	**2,354.1716**	**2,354.1716**	**0.0875**	**0.0000**	**2,356.0081**

3.5 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	155.5244	155.5244	0.0359	0.0000	156.2773
Total											**0.0000**	**155.5244**	**155.5244**	**0.0359**	**0.0000**	**156.2773**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	659.7306	659.7306	4.8200e-003	0.0000	659.8318
Worker											0.0000	1,694.4411	1,694.4411	0.0826	0.0000	1,696.1762
Total											**0.0000**	**2,354.1716**	**2,354.1716**	**0.0875**	**0.0000**	**2,356.0081**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	663.1213	663.1213	0.1514	0.0000	666.3008
Total											**0.0000**	**663.1213**	**663.1213**	**0.1514**	**0.0000**	**666.3008**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,809.6469	2,809.6469	0.0210	0.0000	2,810.0878
Worker											0.0000	7,101.9072	7,101.9072	0.3371	0.0000	7,108.9871
Total											**0.0000**	**9,911.5542**	**9,911.5542**	**0.3581**	**0.0000**	**9,919.0749**

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	663.1205	663.1205	0.1514	0.0000	666.3000
Total											**0.0000**	**663.1205**	**663.1205**	**0.1514**	**0.0000**	**666.3000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,809.646 9	2,809.646 9	0.0210	0.0000	2,810.087 8
Worker											0.0000	7,101.907 2	7,101.907 2	0.3371	0.0000	7,108.987 1
Total											**0.0000**	**9,911.554 2**	**9,911.554 2**	**0.3581**	**0.0000**	**9,919.074 9**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	663.3279	663.3279	0.1500	0.0000	666.4776
Total											**0.0000**	**663.3279**	**663.3279**	**0.1500**	**0.0000**	**666.4776**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,796.2671	2,796.2671	0.0188	0.0000	2,796.6620
Worker											0.0000	6,991.3927	6,991.3927	0.3237	0.0000	6,998.1909
Total											**0.0000**	**9,787.6598**	**9,787.6598**	**0.3425**	**0.0000**	**9,794.8530**

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	663.3271	663.3271	0.1500	0.0000	666.4768
Total											**0.0000**	**663.3271**	**663.3271**	**0.1500**	**0.0000**	**666.4768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,796.2671	2,796.2671	0.0188	0.0000	2,796.6620
Worker											0.0000	6,991.3927	6,991.3927	0.3237	0.0000	6,998.1909
Total											**0.0000**	**9,787.6598**	**9,787.6598**	**0.3425**	**0.0000**	**9,794.8530**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	668.5465	668.5465	0.1500	0.0000	671.6961
Total											**0.0000**	**668.5465**	**668.5465**	**0.1500**	**0.0000**	**671.6961**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,824.039 4	2,824.039 4	0.0192	0.0000	2,824.442 5
Worker											0.0000	6,993.280 1	6,993.280 1	0.3178	0.0000	6,999.953 5
Total											**0.0000**	**9,817.319 5**	**9,817.319 5**	**0.3370**	**0.0000**	**9,824.395 9**

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	668.5457	668.5457	0.1500	0.0000	671.6953
Total											**0.0000**	**668.5457**	**668.5457**	**0.1500**	**0.0000**	**671.6953**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,824.0394	2,824.0394	0.0192	0.0000	2,824.4425
Worker											0.0000	6,993.2801	6,993.2801	0.3178	0.0000	6,999.9535
Total											**0.0000**	**9,817.3195**	**9,817.3195**	**0.3370**	**0.0000**	**9,824.3959**

3.5 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1786	666.1786	0.1483	0.0000	669.2925
Total											**0.0000**	**666.1786**	**666.1786**	**0.1483**	**0.0000**	**669.2925**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.4013	2,813.4013	0.0192	0.0000	2,813.8045
Worker											0.0000	6,876.3689	6,876.3689	0.3064	0.0000	6,882.8041
Total											**0.0000**	**9,689.7702**	**9,689.7702**	**0.3256**	**0.0000**	**9,696.6085**

3.5 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1778	666.1778	0.1483	0.0000	669.2917
Total											**0.0000**	**666.1778**	**666.1778**	**0.1483**	**0.0000**	**669.2917**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.4013	2,813.4013	0.0192	0.0000	2,813.8045
Worker											0.0000	6,876.3689	6,876.3689	0.3064	0.0000	6,882.8041
Total											**0.0000**	**9,689.7702**	**9,689.7702**	**0.3256**	**0.0000**	**9,696.6085**

3.5 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1786	666.1786	0.1483	0.0000	669.2925
Total											**0.0000**	**666.1786**	**666.1786**	**0.1483**	**0.0000**	**669.2925**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,812.8160	2,812.8160	0.0186	0.0000	2,813.2062
Worker											0.0000	6,797.1564	6,797.1564	0.2975	0.0000	6,803.4033
Total											**0.0000**	**9,609.9724**	**9,609.9724**	**0.3161**	**0.0000**	**9,616.6095**

3.5 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1778	666.1778	0.1483	0.0000	669.2917
Total											**0.0000**	**666.1778**	**666.1778**	**0.1483**	**0.0000**	**669.2917**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,812.8160	2,812.8160	0.0186	0.0000	2,813.2062
Worker											0.0000	6,797.1564	6,797.1564	0.2975	0.0000	6,803.4033
Total											**0.0000**	**9,609.9724**	**9,609.9724**	**0.3161**	**0.0000**	**9,616.6095**

3.5 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1786	666.1786	0.1483	0.0000	669.2925
Total											**0.0000**	**666.1786**	**666.1786**	**0.1483**	**0.0000**	**669.2925**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.026 8	2,813.026 8	0.0186	0.0000	2,813.417 8
Worker											0.0000	6,727.724 8	6,727.724 8	0.2894	0.0000	6,733.802 2
Total											**0.0000**	**9,540.751 5**	**9,540.751 5**	**0.3080**	**0.0000**	**9,547.220 0**

3.5 Building Construction - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1778	666.1778	0.1483	0.0000	669.2917
Total											**0.0000**	**666.1778**	**666.1778**	**0.1483**	**0.0000**	**669.2917**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.0268	2,813.0268	0.0186	0.0000	2,813.4178
Worker											0.0000	6,727.7248	6,727.7248	0.2894	0.0000	6,733.8022
Total											**0.0000**	**9,540.7515**	**9,540.7515**	**0.3080**	**0.0000**	**9,547.2200**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	663.6262	663.6262	0.1477	0.0000	666.7281
Total											**0.0000**	**663.6262**	**663.6262**	**0.1477**	**0.0000**	**666.7281**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,802.2856	2,802.2856	0.0185	0.0000	2,802.6732
Worker											0.0000	6,642.2451	6,642.2451	0.2812	0.0000	6,648.1499
Total											**0.0000**	**9,444.5307**	**9,444.5307**	**0.2996**	**0.0000**	**9,450.8231**

3.5 Building Construction - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	663.6254	663.6254	0.1477	0.0000	666.7273
Total											**0.0000**	**663.6254**	**663.6254**	**0.1477**	**0.0000**	**666.7273**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,802.2856	2,802.2856	0.0185	0.0000	2,802.6732
Worker											0.0000	6,642.2451	6,642.2451	0.2812	0.0000	6,648.1499
Total											**0.0000**	**9,444.5307**	**9,444.5307**	**0.2996**	**0.0000**	**9,450.8231**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1786	666.1786	0.1483	0.0000	669.2925
Total											**0.0000**	**666.1786**	**666.1786**	**0.1483**	**0.0000**	**669.2925**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.1652	2,813.1652	0.0186	0.0000	2,813.5549
Worker											0.0000	6,615.5888	6,615.5888	0.2752	0.0000	6,621.3679
Total											**0.0000**	**9,428.7541**	**9,428.7541**	**0.2937**	**0.0000**	**9,434.9228**

3.5 Building Construction - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	666.1778	666.1778	0.1483	0.0000	669.2917
Total											**0.0000**	**666.1778**	**666.1778**	**0.1483**	**0.0000**	**669.2917**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.1652	2,813.1652	0.0186	0.0000	2,813.5549
Worker											0.0000	6,615.5888	6,615.5888	0.2752	0.0000	6,621.3679
Total											**0.0000**	**9,428.7541**	**9,428.7541**	**0.2937**	**0.0000**	**9,434.9228**

3.5 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	748.0616	748.0616	0.0309	0.0000	748.7099
Total											**0.0000**	**748.0616**	**748.0616**	**0.0309**	**0.0000**	**748.7099**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.195 1	2,813.195 1	0.0186	0.0000	2,813.585 2
Worker											0.0000	6,570.530 0	6,570.530 0	0.2685	0.0000	6,576.169 0
Total											**0.0000**	**9,383.725 1**	**9,383.725 1**	**0.2871**	**0.0000**	**9,389.754 3**

3.5 Building Construction - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	748.0607	748.0607	0.0309	0.0000	748.7090
Total											**0.0000**	**748.0607**	**748.0607**	**0.0309**	**0.0000**	**748.7090**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	2,813.1951	2,813.1951	0.0186	0.0000	2,813.5852
Worker											0.0000	6,570.5300	6,570.5300	0.2685	0.0000	6,576.1690
Total											**0.0000**	**9,383.7251**	**9,383.7251**	**0.2871**	**0.0000**	**9,389.7543**

3.6 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	tons/yr										MT/yr					
Off-Road											0.0000	33.2211	33.2211	9.9800e-003	0.0000	33.4306
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**33.2211**	**33.2211**	**9.9800e-003**	**0.0000**	**33.4306**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	8.4593	8.4593	4.1000e-004	0.0000	8.4680
Total											**0.0000**	**8.4593**	**8.4593**	**4.1000e-004**	**0.0000**	**8.4680**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	33.2210	33.2210	9.9800e-003	0.0000	33.4305
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**33.2210**	**33.2210**	**9.9800e-003**	**0.0000**	**33.4305**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	8.4593	8.4593	4.1000e-004	0.0000	8.4680
Total											**0.0000**	**8.4593**	**8.4593**	**4.1000e-004**	**0.0000**	**8.4680**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	141.6567	141.6567	0.0425	0.0000	142.5501
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**141.6567**	**141.6567**	**0.0425**	**0.0000**	**142.5501**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	35.4556	35.4556	1.6800e-003	0.0000	35.4909
Total											**0.0000**	**35.4556**	**35.4556**	**1.6800e-003**	**0.0000**	**35.4909**

3.6 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	141.6565	141.6565	0.0425	0.0000	142.5499
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**141.6565**	**141.6565**	**0.0425**	**0.0000**	**142.5499**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	35.4556	35.4556	1.6800e-003	0.0000	35.4909
Total											**0.0000**	**35.4556**	**35.4556**	**1.6800e-003**	**0.0000**	**35.4909**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	141.6472	141.6472	0.0425	0.0000	142.5405
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**141.6472**	**141.6472**	**0.0425**	**0.0000**	**142.5405**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	34.9039	34.9039	1.6200e-003	0.0000	34.9378
Total											**0.0000**	**34.9039**	**34.9039**	**1.6200e-003**	**0.0000**	**34.9378**

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	141.6470	141.6470	0.0425	0.0000	142.5404
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**141.6470**	**141.6470**	**0.0425**	**0.0000**	**142.5404**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	34.9039	34.9039	1.6200e-003	0.0000	34.9378
Total											**0.0000**	**34.9039**	**34.9039**	**1.6200e-003**	**0.0000**	**34.9378**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	101.8697	101.8697	0.0306	0.0000	102.5122
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**101.8697**	**101.8697**	**0.0306**	**0.0000**	**102.5122**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	24.9190	24.9190	1.1300e-003	0.0000	24.9428
Total											**0.0000**	**24.9190**	**24.9190**	**1.1300e-003**	**0.0000**	**24.9428**

3.6 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	101.8696	101.8696	0.0306	0.0000	102.5121
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**101.8696**	**101.8696**	**0.0306**	**0.0000**	**102.5121**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	24.9190	24.9190	1.1300e-003	0.0000	24.9428
Total											**0.0000**	**24.9190**	**24.9190**	**1.1300e-003**	**0.0000**	**24.9428**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	59.7461	59.7461	3.8900e-003	0.0000	59.8278
Total											**0.0000**	**59.7461**	**59.7461**	**3.8900e-003**	**0.0000**	**59.8278**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,277.7884	1,277.7884	0.0607	0.0000	1,279.0622
Total											**0.0000**	**1,277.7884**	**1,277.7884**	**0.0607**	**0.0000**	**1,279.0622**

3.7 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	59.7461	59.7461	3.8900e-003	0.0000	59.8278
Total											**0.0000**	**59.7461**	**59.7461**	**3.8900e-003**	**0.0000**	**59.8278**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,277.7884	1,277.7884	0.0607	0.0000	1,279.0622
Total											**0.0000**	**1,277.7884**	**1,277.7884**	**0.0607**	**0.0000**	**1,279.0622**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.3846	66.3846	3.9700e-003	0.0000	66.4680
Total											**0.0000**	**66.3846**	**66.3846**	**3.9700e-003**	**0.0000**	**66.4680**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,397.6715	1,397.6715	0.0647	0.0000	1,399.0306
Total											**0.0000**	**1,397.6715**	**1,397.6715**	**0.0647**	**0.0000**	**1,399.0306**

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.3845	66.3845	3.9700e-003	0.0000	66.4679
Total											**0.0000**	**66.3845**	**66.3845**	**3.9700e-003**	**0.0000**	**66.4679**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,397.6715	1,397.6715	0.0647	0.0000	1,399.0306
Total											**0.0000**	**1,397.6715**	**1,397.6715**	**0.0647**	**0.0000**	**1,399.0306**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.8953	66.8953	3.7700e-003	0.0000	66.9744
Total											**0.0000**	**66.8953**	**66.8953**	**3.7700e-003**	**0.0000**	**66.9744**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,398.0488	1,398.0488	0.0635	0.0000	1,399.3829
Total											**0.0000**	**1,398.0488**	**1,398.0488**	**0.0635**	**0.0000**	**1,399.3829**

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.8952	66.8952	3.7700e-003	0.0000	66.9743
Total											**0.0000**	**66.8952**	**66.8952**	**3.7700e-003**	**0.0000**	**66.9743**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,398.0488	1,398.0488	0.0635	0.0000	1,399.3829
Total											**0.0000**	**1,398.0488**	**1,398.0488**	**0.0635**	**0.0000**	**1,399.3829**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6399	66.6399	3.6400e-003	0.0000	66.7163
Total											**0.0000**	**66.6399**	**66.6399**	**3.6400e-003**	**0.0000**	**66.7163**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,374.6767	1,374.6767	0.0613	0.0000	1,375.9632
Total											**0.0000**	**1,374.6767**	**1,374.6767**	**0.0613**	**0.0000**	**1,375.9632**

3.7 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6398	66.6398	3.6400e-003	0.0000	66.7162
Total											**0.0000**	**66.6398**	**66.6398**	**3.6400e-003**	**0.0000**	**66.7162**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,374.6767	1,374.6767	0.0613	0.0000	1,375.9632
Total											**0.0000**	**1,374.6767**	**1,374.6767**	**0.0613**	**0.0000**	**1,375.9632**

3.7 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6399	66.6399	3.6400e-003	0.0000	66.7163
Total											**0.0000**	**66.6399**	**66.6399**	**3.6400e-003**	**0.0000**	**66.7163**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,358.8411	1,358.8411	0.0595	0.0000	1,360.0900
Total											**0.0000**	**1,358.8411**	**1,358.8411**	**0.0595**	**0.0000**	**1,360.0900**

3.7 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6398	66.6398	3.6400e-003	0.0000	66.7162
Total											**0.0000**	**66.6398**	**66.6398**	**3.6400e-003**	**0.0000**	**66.7162**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,358.8411	1,358.8411	0.0595	0.0000	1,360.0900
Total											**0.0000**	**1,358.8411**	**1,358.8411**	**0.0595**	**0.0000**	**1,360.0900**

3.7 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6399	66.6399	3.6400e-003	0.0000	66.7163
Total											**0.0000**	**66.6399**	**66.6399**	**3.6400e-003**	**0.0000**	**66.7163**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,344.960 8	1,344.960 8	0.0579	0.0000	1,346.175 8
Total											**0.0000**	**1,344.960 8**	**1,344.960 8**	**0.0579**	**0.0000**	**1,346.175 8**

3.7 Architectural Coating - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6398	66.6398	3.6400e-003	0.0000	66.7162
Total											**0.0000**	**66.6398**	**66.6398**	**3.6400e-003**	**0.0000**	**66.7162**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,344.9608	1,344.9608	0.0579	0.0000	1,346.1758
Total											**0.0000**	**1,344.9608**	**1,344.9608**	**0.0579**	**0.0000**	**1,346.1758**

3.7 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.3846	66.3846	3.6200e-003	0.0000	66.4606
Total											**0.0000**	**66.3846**	**66.3846**	**3.6200e-003**	**0.0000**	**66.4606**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,327.8723	1,327.8723	0.0562	0.0000	1,329.0528
Total											**0.0000**	**1,327.8723**	**1,327.8723**	**0.0562**	**0.0000**	**1,329.0528**

3.7 Architectural Coating - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.3845	66.3845	3.6200e-003	0.0000	66.4606
Total											**0.0000**	**66.3845**	**66.3845**	**3.6200e-003**	**0.0000**	**66.4606**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,327.8723	1,327.8723	0.0562	0.0000	1,329.0528
Total											**0.0000**	**1,327.8723**	**1,327.8723**	**0.0562**	**0.0000**	**1,329.0528**

3.7 Architectural Coating - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6399	66.6399	3.6400e-003	0.0000	66.7163
Total											**0.0000**	**66.6399**	**66.6399**	**3.6400e-003**	**0.0000**	**66.7163**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,322.5434	1,322.5434	0.0550	0.0000	1,323.6987
Total											**0.0000**	**1,322.5434**	**1,322.5434**	**0.0550**	**0.0000**	**1,323.6987**

3.7 Architectural Coating - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6398	66.6398	3.6400e-003	0.0000	66.7162
Total											**0.0000**	**66.6398**	**66.6398**	**3.6400e-003**	**0.0000**	**66.7162**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,322.5434	1,322.5434	0.0550	0.0000	1,323.6987
Total											**0.0000**	**1,322.5434**	**1,322.5434**	**0.0550**	**0.0000**	**1,323.6987**

3.7 Architectural Coating - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6399	66.6399	2.7000e-003	0.0000	66.6966
Total											**0.0000**	**66.6399**	**66.6399**	**2.7000e-003**	**0.0000**	**66.6966**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,313.5355	1,313.5355	0.0537	0.0000	1,314.6628
Total											**0.0000**	**1,313.5355**	**1,313.5355**	**0.0537**	**0.0000**	**1,314.6628**

3.7 Architectural Coating - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	66.6398	66.6398	2.7000e-003	0.0000	66.6965
Total											**0.0000**	**66.6398**	**66.6398**	**2.7000e-003**	**0.0000**	**66.6965**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,313.5355	1,313.5355	0.0537	0.0000	1,314.6628
Total											**0.0000**	**1,313.5355**	**1,313.5355**	**0.0537**	**0.0000**	**1,314.6628**

3.8 Improvements - Storm Drains - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	930.2824	930.2824	0.3009	0.0000	936.6007
Total											**0.0000**	**930.2824**	**930.2824**	**0.3009**	**0.0000**	**936.6007**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	41.5032	41.5032	1.9700e-003	0.0000	41.5446
Total											**0.0000**	**41.5032**	**41.5032**	**1.9700e-003**	**0.0000**	**41.5446**

3.8 Improvements - Storm Drains - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	930.2813	930.2813	0.3009	0.0000	936.5996
Total											**0.0000**	**930.2813**	**930.2813**	**0.3009**	**0.0000**	**936.5996**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	41.5032	41.5032	1.9700e-003	0.0000	41.5446
Total											**0.0000**	**41.5032**	**41.5032**	**1.9700e-003**	**0.0000**	**41.5446**

3.9 Improvements - Water - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	307.1477	307.1477	0.0993	0.0000	309.2338
Total											**0.0000**	**307.1477**	**307.1477**	**0.0993**	**0.0000**	**309.2338**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	14.2297	14.2297	6.8000e-004	0.0000	14.2439
Total											**0.0000**	**14.2297**	**14.2297**	**6.8000e-004**	**0.0000**	**14.2439**

3.9 Improvements - Water - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	307.1473	307.1473	0.0993	0.0000	309.2334
Total											**0.0000**	**307.1473**	**307.1473**	**0.0993**	**0.0000**	**309.2334**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	14.2297	14.2297	6.8000e-004	0.0000	14.2439
Total											**0.0000**	**14.2297**	**14.2297**	**6.8000e-004**	**0.0000**	**14.2439**

3.9 Improvements - Water - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	819.0503	819.0503	0.2649	0.0000	824.6132
Total											**0.0000**	**819.0503**	**819.0503**	**0.2649**	**0.0000**	**824.6132**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	37.3553	37.3553	1.7300e-003	0.0000	37.3916
Total											**0.0000**	**37.3553**	**37.3553**	**1.7300e-003**	**0.0000**	**37.3916**

3.9 Improvements - Water - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	819.0494	819.0494	0.2649	0.0000	824.6122
Total											**0.0000**	**819.0494**	**819.0494**	**0.2649**	**0.0000**	**824.6122**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	37.3553	37.3553	1.7300e-003	0.0000	37.3916
Total											**0.0000**	**37.3553**	**37.3553**	**1.7300e-003**	**0.0000**	**37.3916**

3.10 Grading - Direct (Phase 2) - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,296.2781	1,296.2781	0.4002	0.0000	1,304.6817
Total											**0.0000**	**1,296.2781**	**1,296.2781**	**0.4002**	**0.0000**	**1,304.6817**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	34.5536	34.5536	1.6000e-003	0.0000	34.5872
Total											**0.0000**	**34.5536**	**34.5536**	**1.6000e-003**	**0.0000**	**34.5872**

3.10 Grading - Direct (Phase 2) - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,296.2765	1,296.2765	0.4002	0.0000	1,304.6802
Total											**0.0000**	**1,296.2765**	**1,296.2765**	**0.4002**	**0.0000**	**1,304.6802**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	34.5536	34.5536	1.6000e-003	0.0000	34.5872
Total											**0.0000**	**34.5536**	**34.5536**	**1.6000e-003**	**0.0000**	**34.5872**

3.11 Improvements - Streets - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	279.0448	279.0448	0.0903	0.0000	280.9400
Total											**0.0000**	**279.0448**	**279.0448**	**0.0903**	**0.0000**	**280.9400**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.3388	9.3388	4.3000e-004	0.0000	9.3479
Total											**0.0000**	**9.3388**	**9.3388**	**4.3000e-004**	**0.0000**	**9.3479**

3.11 Improvements - Streets - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	279.0444	279.0444	0.0903	0.0000	280.9397
Total											**0.0000**	**279.0444**	**279.0444**	**0.0903**	**0.0000**	**280.9397**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	9.3388	9.3388	4.3000e-004	0.0000	9.3479
Total											**0.0000**	**9.3388**	**9.3388**	**4.3000e-004**	**0.0000**	**9.3479**

3.12 Grading - Indirect (Phase 2) - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	4,390.2068	4,390.2068	1.4199	0.0000	4,420.0243
Total											**0.0000**	**4,390.2068**	**4,390.2068**	**1.4199**	**0.0000**	**4,420.0243**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	305.6354	305.6354	2.2200e-003	0.0000	305.6820
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	105.6784	105.6784	4.8000e-003	0.0000	105.7793
Total											**0.0000**	**411.3138**	**411.3138**	**7.0200e-003**	**0.0000**	**411.4612**

3.12 Grading - Indirect (Phase 2) - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	4,390.2016	4,390.2016	1.4199	0.0000	4,420.0191
Total											**0.0000**	**4,390.2016**	**4,390.2016**	**1.4199**	**0.0000**	**4,420.0191**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	305.6354	305.6354	2.2200e-003	0.0000	305.6820
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	105.6784	105.6784	4.8000e-003	0.0000	105.7793
Total											**0.0000**	**411.3138**	**411.3138**	**7.0200e-003**	**0.0000**	**411.4612**

3.12 Grading - Indirect (Phase 2) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	6,928.951 1	6,928.951 1	2.2410	0.0000	6,976.011 4
Total											**0.0000**	**6,928.951 1**	**6,928.951 1**	**2.2410**	**0.0000**	**6,976.011 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	482.6518	482.6518	3.5200e-003	0.0000	482.7257
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	164.6998	164.6998	7.3400e-003	0.0000	164.8539
Total											**0.0000**	**647.3516**	**647.3516**	**0.0109**	**0.0000**	**647.5796**

3.12 Grading - Indirect (Phase 2) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	6,928.9429	6,928.9429	2.2410	0.0000	6,976.0031
Total											**0.0000**	**6,928.9429**	**6,928.9429**	**2.2410**	**0.0000**	**6,976.0031**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	482.6518	482.6518	3.5200e-003	0.0000	482.7257
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	164.6998	164.6998	7.3400e-003	0.0000	164.8539
Total											**0.0000**	**647.3516**	**647.3516**	**0.0109**	**0.0000**	**647.5796**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
High School	0.00	0.00	0.00		
Industrial Park	0.00	0.00	0.00		
Junior High School	0.00	0.00	0.00		
Office Park	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Elementary School	18.50	10.10	7.90	65.00	30.00	5.00	63	25	12
General Office Building	18.50	10.10	7.90	33.00	48.00	19.00	77	19	4
Health Club	18.50	10.10	7.90	16.90	64.10	19.00	52	39	9
High School	18.50	10.10	7.90	77.80	17.20	5.00	75	19	6
Industrial Park	18.50	10.10	7.90	59.00	28.00	13.00	79	19	2
Junior High School	18.50	10.10	7.90	72.80	22.20	5.00	63	25	12
Office Park	18.50	10.10	7.90	33.00	48.00	19.00	82	15	3
Regional Shopping Center	18.50	10.10	7.90	16.30	64.70	19.00	54	35	11
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.508453	0.058534	0.182003	0.128323	0.043028	0.007073	0.018375	0.041612	0.002788	0.003272	0.003888	0.000508	0.002143

5.0 Energy Detail

4.4 Fleet Mix

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	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Industrial Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Junior High School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Industrial Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Junior High School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
High School	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Junior High School	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
High School	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Junior High School	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	119.5969	119.5969	0.1142	0.0000	121.9947
Unmitigated											0.0000	119.5969	119.5969	0.1142	0.0000	121.9947

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	119.5969	119.5969	0.1142	0.0000	121.9947
Total											**0.0000**	**119.5969**	**119.5969**	**0.1142**	**0.0000**	**121.9947**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	119.5969	119.5969	0.1142	0.0000	121.9947
Total											**0.0000**	**119.5969**	**119.5969**	**0.1142**	**0.0000**	**121.9947**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
High School	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Junior High School	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
High School	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Junior High School	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Construction Stage 4

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	23.00	1000sqft	0.90	23,000.00	0
Elementary School	900.00	Student	13.00	71,500.00	0
General Light Industry	11.00	1000sqft	1.40	11,000.00	0
Industrial Park	53.00	1000sqft	2.20	53,000.00	0
Golf Course	180.00	Acre	180.00	7,840,800.00	0
Health Club	14.60	1000sqft	7.00	14,600.00	0
Hotel	143.00	Room	4.10	100,000.00	0
Condo/Townhouse	2,775.00	Dwelling Unit	233.20	2,775,000.00	8741
Single Family Housing	3,783.00	Dwelling Unit	573.60	6,809,400.00	11916
Regional Shopping Center	550.00	1000sqft	22.60	550,000.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2030

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Based on project construction schedule.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list.

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Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Trips and VMT - Default Worker and Vendor Trips. Hauling trips in the Grading Indirect phases account for hauling trips for vegetation.

Grading -

Vehicle Trips - Operational emissions calculated separately.

Woodstoves - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Solid Waste - Operational emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	11,000.00	1,218.00
tblConstructionPhase	NumDays	155,000.00	1,304.00

tblConstructionPhase	NumDays	15,500.00	100.00
tblConstructionPhase	NumDays	15,500.00	783.00
tblConstructionPhase	NumDays	15,500.00	567.00
tblConstructionPhase	NumDays	11,000.00	257.00
tblConstructionPhase	PhaseEndDate	10/25/2030	12/31/2030
tblConstructionPhase	PhaseEndDate	5/19/2031	12/31/2030
tblConstructionPhase	PhaseEndDate	5/20/2026	12/31/2025
tblConstructionPhase	PhaseEndDate	3/3/2028	3/3/2026
tblConstructionPhase	PhaseEndDate	12/25/2031	12/25/2026
tblConstructionPhase	PhaseEndDate	1/22/2027	2/24/2026
tblConstructionPhase	PhaseEndDate	8/12/2031	12/29/2026
tblConstructionPhase	PhaseEndDate	2/23/2027	2/25/2027
tblConstructionPhase	PhaseEndDate	2/2/2027	11/29/2024
tblConstructionPhase	PhaseEndDate	6/13/2025	7/15/2025
tblConstructionPhase	PhaseEndDate	7/14/2026	5/19/2026
tblConstructionPhase	PhaseStartDate	2/25/2026	5/1/2026
tblConstructionPhase	PhaseStartDate	5/20/2026	1/1/2026
tblConstructionPhase	PhaseStartDate	5/20/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	1/1/2026	1/1/2024
tblConstructionPhase	PhaseStartDate	1/1/2031	1/1/2026
tblConstructionPhase	PhaseStartDate	12/26/2026	1/28/2026
tblConstructionPhase	PhaseStartDate	1/1/2031	5/20/2026
tblConstructionPhase	PhaseStartDate	12/30/2026	1/1/2027
tblConstructionPhase	PhaseStartDate	3/4/2026	1/1/2024
tblConstructionPhase	PhaseStartDate	11/30/2024	1/1/2025
tblConstructionPhase	PhaseStartDate	1/28/2026	12/3/2025
tblEnergyUse	LightingElect	1,001.10	0.00
tblEnergyUse	LightingElect	2.98	0.00

tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.49	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	4.25	0.00
tblEnergyUse	LightingElect	7.04	0.00
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	3,126.97	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	2.89	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	0.00
tblEnergyUse	NT24NG	2,951.00	0.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	4.06	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	0.19	0.00
tblEnergyUse	NT24NG	0.49	0.00
tblEnergyUse	NT24NG	5,856.92	0.00
tblEnergyUse	T24E	269.81	0.00
tblEnergyUse	T24E	2.13	0.00
tblEnergyUse	T24E	2.75	0.00

tblEnergyUse	T24E	2.75	0.00
tblEnergyUse	T24E	3.12	0.00
tblEnergyUse	T24E	5.62	0.00
tblEnergyUse	T24E	6.86	0.00
tblEnergyUse	T24E	4.90	0.00
tblEnergyUse	T24E	596.10	0.00
tblEnergyUse	T24NG	11,455.03	0.00
tblEnergyUse	T24NG	9.81	0.00
tblEnergyUse	T24NG	14.36	0.00
tblEnergyUse	T24NG	14.36	0.00
tblEnergyUse	T24NG	20.96	0.00
tblEnergyUse	T24NG	10.54	0.00
tblEnergyUse	T24NG	10.10	0.00
tblEnergyUse	T24NG	1.21	0.00
tblEnergyUse	T24NG	23,944.02	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	2,358.75	0.00
tblFireplaces	NumberGas	3,215.55	0.00
tblFireplaces	NumberNoFireplace	277.50	0.00
tblFireplaces	NumberNoFireplace	378.30	0.00
tblFireplaces	NumberWood	138.75	0.00
tblFireplaces	NumberWood	189.15	0.00
tblLandUse	LandUseSquareFeet	75,243.03	71,500.00

tblLandUse	LandUseSquareFeet	207,636.00	100,000.00
tblLandUse	LotAcreage	0.53	0.90
tblLandUse	LotAcreage	1.73	13.00
tblLandUse	LotAcreage	0.25	1.40
tblLandUse	LotAcreage	1.22	2.20
tblLandUse	LotAcreage	0.34	7.00
tblLandUse	LotAcreage	4.77	4.10
tblLandUse	LotAcreage	173.44	233.20
tblLandUse	LotAcreage	1,228.25	573.60
tblLandUse	LotAcreage	12.63	22.60
tblLandUse	Population	7,937.00	8,741.00
tblLandUse	Population	10,819.00	11,916.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
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tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	130.00	82.00
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tblOffRoadEquipment	HorsePower	255.00	358.00
tblOffRoadEquipment	HorsePower	255.00	358.00
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tblOffRoadEquipment	HorsePower	361.00	356.00
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tblOffRoadEquipment	HorsePower	205.00	206.00
tblOffRoadEquipment	HorsePower	208.00	82.00
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tblOffRoadEquipment	HorsePower	208.00	82.00
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tblOffRoadEquipment	HorsePower	167.00	196.00
tblOffRoadEquipment	HorsePower	167.00	196.00
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tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	80.00	84.00
tblOffRoadEquipment	HorsePower	80.00	84.00

tblOffRoadEquipment	HorsePower	80.00	84.00
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tblOffRoadEquipment	HorsePower	199.00	200.00
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tblOffRoadEquipment	HorsePower	199.00	200.00
tblOffRoadEquipment	HorsePower	199.00	200.00
tblOffRoadEquipment	HorsePower	361.00	356.00
tblOffRoadEquipment	HorsePower	361.00	356.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	30.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	6.00	7.00

tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	11.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2030
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1,276.50	0.00
tblSolidWaste	SolidWasteGenerationRate	164.25	0.00
tblSolidWaste	SolidWasteGenerationRate	13.64	0.00
tblSolidWaste	SolidWasteGenerationRate	167.40	0.00
tblSolidWaste	SolidWasteGenerationRate	83.22	0.00
tblSolidWaste	SolidWasteGenerationRate	78.29	0.00
tblSolidWaste	SolidWasteGenerationRate	65.72	0.00
tblSolidWaste	SolidWasteGenerationRate	21.39	0.00
tblSolidWaste	SolidWasteGenerationRate	577.50	0.00
tblSolidWaste	SolidWasteGenerationRate	4,885.56	0.00

tblTripsAndVMT	HaulingTripNumber	0.00	50,112.00
tblTripsAndVMT	HaulingTripNumber	0.00	36,288.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	5.82	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	10.08	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	5.88	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.77	0.00
tblVehicleTrips	WD_TR	6.59	0.00
tblVehicleTrips	WD_TR	1.29	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	5.04	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	6.96	0.00
tblVehicleTrips	WD_TR	11.42	0.00

tblVehicleTrips	WD_TR	42.94	0.00
tblVehicleTrips	WD_TR	9.57	0.00
tblWater	IndoorWaterUseRate	180,802,421.10	0.00
tblWater	IndoorWaterUseRate	2,181,816.00	0.00
tblWater	IndoorWaterUseRate	2,543,750.00	0.00
tblWater	IndoorWaterUseRate	863,489.90	0.00
tblWater	IndoorWaterUseRate	3,627,448.11	0.00
tblWater	IndoorWaterUseRate	12,256,250.00	0.00
tblWater	IndoorWaterUseRate	4,087,876.20	0.00
tblWater	IndoorWaterUseRate	40,739,886.82	0.00
tblWater	IndoorWaterUseRate	246,477,678.93	0.00
tblWater	OutdoorWaterUseRate	113,984,135.04	0.00
tblWater	OutdoorWaterUseRate	5,610,384.00	0.00
tblWater	OutdoorWaterUseRate	214,466,642.94	0.00
tblWater	OutdoorWaterUseRate	529,235.75	0.00
tblWater	OutdoorWaterUseRate	403,049.79	0.00
tblWater	OutdoorWaterUseRate	2,505,472.51	0.00
tblWater	OutdoorWaterUseRate	24,969,608.05	0.00
tblWater	OutdoorWaterUseRate	155,388,101.93	0.00
tblWoodstoves	NumberCatalytic	138.75	0.00
tblWoodstoves	NumberCatalytic	189.15	0.00
tblWoodstoves	NumberNoncatalytic	138.75	0.00
tblWoodstoves	NumberNoncatalytic	189.15	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023											0.0000	16,020.4991	16,020.4991	4.8989	0.0000	16,123.3756
2024											0.0000	18,517.3022	18,517.3022	5.5336	0.0000	18,633.5077
2025											0.0000	18,346.7110	18,346.7110	5.4820	0.0000	18,461.8330
2026											0.0000	19,705.8417	19,705.8417	1.1416	0.0000	19,729.8142
2027											0.0000	19,158.6940	19,158.6940	0.8336	0.0000	19,176.1997
2028											0.0000	18,889.8706	18,889.8706	0.7900	0.0000	18,906.4602
2029											0.0000	18,868.3537	18,868.3537	0.7803	0.0000	18,884.7399
2030											0.0000	18,921.7942	18,921.7942	0.5748	0.0000	18,933.8653
Total											**0.0000**	**148,429.0665**	**148,429.0665**	**20.0347**	**0.0000**	**148,849.7957**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023											0.0000	16,020.4812	16,020.4812	4.8989	0.0000	16,123.3575
2024											0.0000	18,517.2820	18,517.2820	5.5336	0.0000	18,633.4873
2025											0.0000	18,346.6909	18,346.6909	5.4820	0.0000	18,461.8128
2026											0.0000	19,705.8391	19,705.8391	1.1416	0.0000	19,729.8116
2027											0.0000	19,158.6926	19,158.6926	0.8336	0.0000	19,176.1983
2028											0.0000	18,889.8693	18,889.8693	0.7900	0.0000	18,906.4589
2029											0.0000	18,868.3524	18,868.3524	0.7803	0.0000	18,884.7386
2030											0.0000	18,921.7927	18,921.7927	0.5748	0.0000	18,933.8638
Total											**0.0000**	**148,429.0000**	**148,429.0000**	**20.0347**	**0.0000**	**148,849.7287**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	110.5196	110.5196	0.1054	0.0000	112.7325
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**110.5196**	**110.5196**	**0.1054**	**0.0000**	**112.7325**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	110.5196	110.5196	0.1054	0.0000	112.7325
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**110.5196**	**110.5196**	**0.1054**	**0.0000**	**112.7325**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading - Direct (Phase 1)	Grading	1/1/2023	5/19/2023	5	100	
2	Grading - Indirect (Phase 2)	Grading	1/1/2023	12/31/2025	5	783	
3	Grading - Indirect (Phase 3)	Grading	1/1/2024	3/3/2026	5	567	
4	Improvements - Sewers (Phase 2)	Trenching	1/1/2024	11/29/2024	5	240	
5	Improvements - Sewers (Phase 3)	Trenching	1/1/2025	7/15/2025	5	140	
6	Improvements - Storm Drains (Phase 3)	Trenching	7/16/2025	10/7/2025	5	60	
7	Improvements - Water (Phase 3)	Trenching	10/8/2025	1/27/2026	5	80	
8	Improvements - Storm Drains (Phase 2)	Trenching	12/3/2025	5/19/2026	5	120	
9	Building Construction	Building Construction	1/1/2026	12/31/2030	5	1304	
10	Paving	Paving	1/1/2026	12/25/2026	5	257	
11	Improvements - Streets (Phase 3)	Trenching	1/28/2026	2/24/2026	5	20	
12	Architectural Coating	Architectural Coating	5/1/2026	12/31/2030	5	1218	
13	Improvements - Water (Phase 2)	Trenching	5/20/2026	12/29/2026	5	160	
14	Improvements - Streets/Roads (Phase 2)	Trenching	1/1/2027	2/25/2027	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 19,408,410; Residential Outdoor: 6,469,470; Non-Residential Indoor: 12,995,850; Non-Residential Outdoor: 4,331,950 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading - Direct (Phase 1)	Crawler Tractors	1	11.00	82	0.43
Grading - Direct (Phase 1)	Crushing/Proc. Equipment	1	11.00	85	0.78
Grading - Direct (Phase 1)	Excavators	1	11.00	157	0.38

Grading - Direct (Phase 1)	Graders	1	11.00	162	0.41
Grading - Direct (Phase 1)	Off-Highway Trucks	1	11.00	381	0.38
Grading - Direct (Phase 1)	Other Material Handling Equipment	1	11.00	196	0.40
Grading - Direct (Phase 1)	Rollers	2	11.00	84	0.38
Grading - Direct (Phase 1)	Rubber Tired Dozers	1	11.00	358	0.40
Grading - Direct (Phase 1)	Rubber Tired Loaders	1	11.00	200	0.36
Grading - Direct (Phase 1)	Scrapers	6	11.00	356	0.48
Grading - Indirect (Phase 2)	Crawler Tractors	13	11.00	82	0.43
Grading - Indirect (Phase 2)	Excavators	8	11.00	157	0.38
Grading - Indirect (Phase 2)	Graders	8	11.00	162	0.41
Grading - Indirect (Phase 2)	Off-Highway Trucks	8	11.00	381	0.38
Grading - Indirect (Phase 2)	Other Material Handling Equipment	20	11.00	196	0.40
Grading - Indirect (Phase 2)	Rubber Tired Dozers	8	11.00	358	0.40
Grading - Indirect (Phase 2)	Scrapers	30	11.00	356	0.48
Grading - Indirect (Phase 3)	Crawler Tractors	2	11.00	82	0.43
Grading - Indirect (Phase 3)	Excavators	1	11.00	157	0.38
Grading - Indirect (Phase 3)	Graders	1	11.00	162	0.41
Grading - Indirect (Phase 3)	Off-Highway Trucks	1	11.00	381	0.38
Grading - Indirect (Phase 3)	Other Material Handling Equipment	3	11.00	196	0.40
Grading - Indirect (Phase 3)	Rubber Tired Dozers	1	11.00	358	0.40
Grading - Indirect (Phase 3)	Scrapers	5	11.00	356	0.48
Improvements - Sewers (Phase 2)	Bore/Drill Rigs	1	11.00	206	0.50
Improvements - Sewers (Phase 2)	Cranes	1	11.00	226	0.29
Improvements - Sewers (Phase 2)	Excavators	2	11.00	157	0.38
Improvements - Sewers (Phase 2)	Rollers	1	11.00	84	0.38
Improvements - Sewers (Phase 2)	Rubber Tired Loaders	2	11.00	200	0.36
Improvements - Sewers (Phase 3)	Bore/Drill Rigs	1	11.00	206	0.50
Improvements - Sewers (Phase 3)	Cranes	1	11.00	226	0.29

Improvements - Sewers (Phase 3)	Excavators	1	11.00	157	0.38
Improvements - Sewers (Phase 3)	Rollers	1	11.00	84	0.38
Improvements - Sewers (Phase 3)	Rubber Tired Loaders	1	11.00	200	0.36
Improvements - Storm Drains (Phase 3)	Cranes	1	11.00	226	0.29
Improvements - Storm Drains (Phase 3)	Excavators	2	11.00	157	0.38
Improvements - Storm Drains (Phase 3)	Graders	1	11.00	162	0.41
Improvements - Storm Drains (Phase 3)	Rollers	1	11.00	84	0.38
Improvements - Storm Drains (Phase 3)	Rubber Tired Loaders	1	11.00	200	0.36
Improvements - Water (Phase 3)	Cranes	1	11.00	226	0.29
Improvements - Water (Phase 3)	Excavators	2	11.00	157	0.38
Improvements - Water (Phase 3)	Rollers	1	11.00	84	0.38
Improvements - Water (Phase 3)	Rubber Tired Loaders	1	11.00	200	0.36
Improvements - Storm Drains (Phase 2)	Cranes	1	11.00	226	0.29
Improvements - Storm Drains (Phase 2)	Excavators	2	11.00	157	0.38
Improvements - Storm Drains (Phase 2)	Graders	1	11.00	162	0.41
Improvements - Storm Drains (Phase 2)	Rollers	1	11.00	84	0.38
Improvements - Storm Drains (Phase 2)	Rubber Tired Loaders	2	11.00	200	0.36
Building Construction	Cranes	4	6.00	226	0.29
Building Construction	Forklifts	10	8.00	89	0.20
Building Construction	Generator Sets	4	7.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	10	7.00	97	0.37
Building Construction	Welders	4	7.00	46	0.45
Paving	Pavers	1	8.00	89	0.42
Paving	Paving Equipment	2	8.00	82	0.36
Paving	Rollers	2	6.00	84	0.38
Improvements - Streets (Phase 3)	Graders	1	11.00	162	0.41
Improvements - Streets (Phase 3)	Pavers	1	11.00	89	0.42
Improvements - Streets (Phase 3)	Rollers	1	11.00	84	0.38

Improvements - Streets (Phase 3)	Scrapers	1	11.00	356	0.48
Architectural Coating	Air Compressors	3	7.00	78	0.48
Improvements - Water (Phase 2)	Cranes	1	11.00	226	0.29
Improvements - Water (Phase 2)	Excavators	2	11.00	157	0.38
Improvements - Water (Phase 2)	Rollers	1	11.00	84	0.38
Improvements - Water (Phase 2)	Rubber Tired Loaders	2	11.00	200	0.36
Improvements - Streets/Roads (Phase 2)	Graders	2	11.00	162	0.41
Improvements - Streets/Roads (Phase 2)	Pavers	1	11.00	89	0.42
Improvements - Streets/Roads (Phase 2)	Rollers	2	11.00	84	0.38
Improvements - Streets/Roads (Phase 2)	Scrapers	1	11.00	356	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading - Direct (Phase 1)	16	40.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Indirect (Phase 2)	95	238.00	0.00	50,112.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Indirect (Phase 3)	14	35.00	0.00	36,288.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Sewers (Phase 2)	7	18.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Sewers (Phase 3)	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Storm Drains (Phase 3)	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Water (Phase 3)	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Storm Drains (Phase 2)	7	18.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	32	6,941.00	2,121.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets (Phase 3)	4	10.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	3	1,388.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Water (Phase 2)	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets/Roads (Phase	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - Direct (Phase 1) - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	921.8519	921.8519	0.2872	0.0000	927.8836
Total											**0.0000**	**921.8519**	**921.8519**	**0.2872**	**0.0000**	**927.8836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	23.3471	23.3471	1.0800e-003	0.0000	23.3698
Total											**0.0000**	**23.3471**	**23.3471**	**1.0800e-003**	**0.0000**	**23.3698**

3.2 Grading - Direct (Phase 1) - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	921.8508	921.8508	0.2872	0.0000	927.8825
Total											**0.0000**	**921.8508**	**921.8508**	**0.2872**	**0.0000**	**927.8825**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	23.3471	23.3471	1.0800e-003	0.0000	23.3698
Total											**0.0000**	**23.3471**	**23.3471**	**1.0800e-003**	**0.0000**	**23.3698**

3.3 Grading - Indirect (Phase 2) - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	14,192.4179	14,192.4179	4.5901	0.0000	14,288.8104
Total											**0.0000**	**14,192.4179**	**14,192.4179**	**4.5901**	**0.0000**	**14,288.8104**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	521.7032	521.7032	3.7400e-003	0.0000	521.7818
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	361.1790	361.1790	0.0167	0.0000	361.5302
Total											**0.0000**	**882.8822**	**882.8822**	**0.0205**	**0.0000**	**883.3119**

3.3 Grading - Indirect (Phase 2) - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	14,192.40 11	14,192.40 11	4.5901	0.0000	14,288.79 34
Total											**0.0000**	**14,192.40 11**	**14,192.40 11**	**4.5901**	**0.0000**	**14,288.79 34**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	521.7032	521.7032	3.7400e-003	0.0000	521.7818
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	361.1790	361.1790	0.0167	0.0000	361.5302
Total											**0.0000**	**882.8822**	**882.8822**	**0.0205**	**0.0000**	**883.3119**

3.3 Grading - Indirect (Phase 2) - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	14,297.3769	14,297.3769	4.6241	0.0000	14,394.4822
Total											**0.0000**	**14,297.3769**	**14,297.3769**	**4.6241**	**0.0000**	**14,394.4822**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	526.8189	526.8189	3.8200e-003	0.0000	526.8992
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	361.2765	361.2765	0.0164	0.0000	361.6212
Total											**0.0000**	**888.0954**	**888.0954**	**0.0202**	**0.0000**	**888.5204**

3.3 Grading - Indirect (Phase 2) - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	14,297.3599	14,297.3599	4.6241	0.0000	14,394.4650
Total											**0.0000**	**14,297.3599**	**14,297.3599**	**4.6241**	**0.0000**	**14,394.4650**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	526.8189	526.8189	3.8200e-003	0.0000	526.8992
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	361.2765	361.2765	0.0164	0.0000	361.6212
Total											**0.0000**	**888.0954**	**888.0954**	**0.0202**	**0.0000**	**888.5204**

3.3 Grading - Indirect (Phase 2) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	14,236.4546	14,236.4546	4.6044	0.0000	14,333.1461
Total											**0.0000**	**14,236.4546**	**14,236.4546**	**4.6044**	**0.0000**	**14,333.1461**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	524.8838	524.8838	3.8300e-003	0.0000	524.9642
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	355.2368	355.2368	0.0158	0.0000	355.5692
Total											**0.0000**	**880.1206**	**880.1206**	**0.0197**	**0.0000**	**880.5334**

3.3 Grading - Indirect (Phase 2) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	14,236.4377	14,236.4377	4.6044	0.0000	14,333.1291
Total											**0.0000**	**14,236.4377**	**14,236.4377**	**4.6044**	**0.0000**	**14,333.1291**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	524.8838	524.8838	3.8300e-003	0.0000	524.9642
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	355.2368	355.2368	0.0158	0.0000	355.5692
Total											**0.0000**	**880.1206**	**880.1206**	**0.0197**	**0.0000**	**880.5334**

3.4 Grading - Indirect (Phase 3) - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,149.666 9	2,149.666 9	0.6953	0.0000	2,164.267 0
Total											**0.0000**	**2,149.666 9**	**2,149.666 9**	**0.6953**	**0.0000**	**2,164.267 0**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	526.8189	526.8189	3.8200e-003	0.0000	526.8992
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	53.1289	53.1289	2.4100e-003	0.0000	53.1796
Total											**0.0000**	**579.9478**	**579.9478**	**6.2300e-003**	**0.0000**	**580.0788**

3.4 Grading - Indirect (Phase 3) - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,149.664 3	2,149.664 3	0.6952	0.0000	2,164.264 5
Total											**0.0000**	**2,149.664 3**	**2,149.664 3**	**0.6952**	**0.0000**	**2,164.264 5**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	526.8189	526.8189	3.8200e-003	0.0000	526.8992
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	53.1289	53.1289	2.4100e-003	0.0000	53.1796
Total											**0.0000**	**579.9478**	**579.9478**	**6.2300e-003**	**0.0000**	**580.0788**

3.4 Grading - Indirect (Phase 3) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,140.4765	2,140.4765	0.6923	0.0000	2,155.0143
Total											**0.0000**	**2,140.4765**	**2,140.4765**	**0.6923**	**0.0000**	**2,155.0143**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	524.8838	524.8838	3.8300e-003	0.0000	524.9642
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	52.2407	52.2407	2.3300e-003	0.0000	52.2896
Total											**0.0000**	**577.1245**	**577.1245**	**6.1600e-003**	**0.0000**	**577.2538**

3.4 Grading - Indirect (Phase 3) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,140.4740	2,140.4740	0.6923	0.0000	2,155.0117
Total											**0.0000**	**2,140.4740**	**2,140.4740**	**0.6923**	**0.0000**	**2,155.0117**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	524.8838	524.8838	3.8300e-003	0.0000	524.9642
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	52.2407	52.2407	2.3300e-003	0.0000	52.2896
Total											**0.0000**	**577.1245**	**577.1245**	**6.1600e-003**	**0.0000**	**577.2538**

3.4 Grading - Indirect (Phase 3) - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	360.8466	360.8466	0.1167	0.0000	363.2974
Total											**0.0000**	**360.8466**	**360.8466**	**0.1167**	**0.0000**	**363.2974**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	88.4617	88.4617	6.1000e-004	0.0000	88.4746
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	8.7054	8.7054	3.8000e-004	0.0000	8.7134
Total											**0.0000**	**97.1672**	**97.1672**	**9.9000e-004**	**0.0000**	**97.1880**

3.4 Grading - Indirect (Phase 3) - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	360.8462	360.8462	0.1167	0.0000	363.2970
Total											**0.0000**	**360.8462**	**360.8462**	**0.1167**	**0.0000**	**363.2970**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	88.4617	88.4617	6.1000e-004	0.0000	88.4746
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	8.7054	8.7054	3.8000e-004	0.0000	8.7134
Total											**0.0000**	**97.1672**	**97.1672**	**9.9000e-004**	**0.0000**	**97.1880**

3.5 Improvements - Sewers (Phase 2) - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	577.1862	577.1862	0.1867	0.0000	581.1064
Total											**0.0000**	**577.1862**	**577.1862**	**0.1867**	**0.0000**	**581.1064**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	25.0291	25.0291	1.1400e-003	0.0000	25.0530
Total											**0.0000**	**25.0291**	**25.0291**	**1.1400e-003**	**0.0000**	**25.0530**

3.5 Improvements - Sewers (Phase 2) - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	577.1855	577.1855	0.1867	0.0000	581.1057
Total											**0.0000**	**577.1855**	**577.1855**	**0.1867**	**0.0000**	**581.1057**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	25.0291	25.0291	1.1400e-003	0.0000	25.0530
Total											**0.0000**	**25.0291**	**25.0291**	**1.1400e-003**	**0.0000**	**25.0530**

3.6 Improvements - Sewers (Phase 3) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	241.1972	241.1972	0.0780	0.0000	242.8354
Total											**0.0000**	**241.1972**	**241.1972**	**0.0780**	**0.0000**	**242.8354**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.4081	10.4081	4.6000e-004	0.0000	10.4179
Total											**0.0000**	**10.4081**	**10.4081**	**4.6000e-004**	**0.0000**	**10.4179**

3.6 Improvements - Sewers (Phase 3) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	241.1969	241.1969	0.0780	0.0000	242.8351
Total											**0.0000**	**241.1969**	**241.1969**	**0.0780**	**0.0000**	**242.8351**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.4081	10.4081	4.6000e-004	0.0000	10.4179
Total											**0.0000**	**10.4081**	**10.4081**	**4.6000e-004**	**0.0000**	**10.4179**

3.7 Improvements - Storm Drains (Phase 3) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	110.9565	110.9565	0.0359	0.0000	111.7101
Total											**0.0000**	**110.9565**	**110.9565**	**0.0359**	**0.0000**	**111.7101**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	5.1469	5.1469	2.3000e-004	0.0000	5.1517
Total											**0.0000**	**5.1469**	**5.1469**	**2.3000e-004**	**0.0000**	**5.1517**

3.7 Improvements - Storm Drains (Phase 3) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	110.9564	110.9564	0.0359	0.0000	111.7100
Total											**0.0000**	**110.9564**	**110.9564**	**0.0359**	**0.0000**	**111.7100**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	5.1469	5.1469	2.3000e-004	0.0000	5.1517
Total											**0.0000**	**5.1469**	**5.1469**	**2.3000e-004**	**0.0000**	**5.1517**

3.8 Improvements - Water (Phase 3) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	91.4797	91.4797	0.0296	0.0000	92.1010
Total											**0.0000**	**91.4797**	**91.4797**	**0.0296**	**0.0000**	**92.1010**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.5350	4.5350	2.0000e-004	0.0000	4.5392
Total											**0.0000**	**4.5350**	**4.5350**	**2.0000e-004**	**0.0000**	**4.5392**

3.8 Improvements - Water (Phase 3) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	91.4796	91.4796	0.0296	0.0000	92.1009
Total											**0.0000**	**91.4796**	**91.4796**	**0.0296**	**0.0000**	**92.1009**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	4.5350	4.5350	2.0000e-004	0.0000	4.5392
Total											**0.0000**	**4.5350**	**4.5350**	**2.0000e-004**	**0.0000**	**4.5392**

3.8 Improvements - Water (Phase 3) - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	28.4937	28.4937	9.2200e-003	0.0000	28.6872
Total											**0.0000**	**28.4937**	**28.4937**	**9.2200e-003**	**0.0000**	**28.6872**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.3963	1.3963	6.0000e-005	0.0000	1.3975
Total											**0.0000**	**1.3963**	**1.3963**	**6.0000e-005**	**0.0000**	**1.3975**

3.8 Improvements - Water (Phase 3) - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	28.4937	28.4937	9.2200e-003	0.0000	28.6872
Total											**0.0000**	**28.4937**	**28.4937**	**9.2200e-003**	**0.0000**	**28.6872**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.3963	1.3963	6.0000e-005	0.0000	1.3975
Total											**0.0000**	**1.3963**	**1.3963**	**6.0000e-005**	**0.0000**	**1.3975**

3.9 Improvements - Storm Drains (Phase 2) - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	46.6497	46.6497	0.0151	0.0000	46.9665
Total											**0.0000**	**46.6497**	**46.6497**	**0.0151**	**0.0000**	**46.9665**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.1617	2.1617	1.0000e-004	0.0000	2.1637
Total											**0.0000**	**2.1617**	**2.1617**	**1.0000e-004**	**0.0000**	**2.1637**

3.9 Improvements - Storm Drains (Phase 2) - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	46.6496	46.6496	0.0151	0.0000	46.9665
Total											**0.0000**	**46.6496**	**46.6496**	**0.0151**	**0.0000**	**46.9665**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.1617	2.1617	1.0000e-004	0.0000	2.1637
Total											**0.0000**	**2.1617**	**2.1617**	**1.0000e-004**	**0.0000**	**2.1637**

3.9 Improvements - Storm Drains (Phase 2) - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	219.9199	219.9199	0.0711	0.0000	221.4136
Total											**0.0000**	**219.9199**	**219.9199**	**0.0711**	**0.0000**	**221.4136**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.0734	10.0734	4.4000e-004	0.0000	10.0827
Total											**0.0000**	**10.0734**	**10.0734**	**4.4000e-004**	**0.0000**	**10.0827**

3.9 Improvements - Storm Drains (Phase 2) - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	219.9196	219.9196	0.0711	0.0000	221.4133
Total											**0.0000**	**219.9196**	**219.9196**	**0.0711**	**0.0000**	**221.4133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	10.0734	10.0734	4.4000e-004	0.0000	10.0827
Total											**0.0000**	**10.0734**	**10.0734**	**4.4000e-004**	**0.0000**	**10.0827**

3.10 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,026.4539	1,026.4539	0.2384	0.0000	1,031.4600
Total											**0.0000**	**1,026.4539**	**1,026.4539**	**0.2384**	**0.0000**	**1,031.4600**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,764.2346	5,764.2346	0.0381	0.0000	5,765.0342
Worker											0.0000	10,240.7343	10,240.7343	0.4482	0.0000	10,250.1459
Total											**0.0000**	**16,004.9688**	**16,004.9688**	**0.4863**	**0.0000**	**16,015.1800**

3.10 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,026.4527	1,026.4527	0.2384	0.0000	1,031.4588
Total											**0.0000**	**1,026.4527**	**1,026.4527**	**0.2384**	**0.0000**	**1,031.4588**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,764.2346	5,764.2346	0.0381	0.0000	5,765.0342
Worker											0.0000	10,240.7343	10,240.7343	0.4482	0.0000	10,250.1459
Total											**0.0000**	**16,004.9688**	**16,004.9688**	**0.4863**	**0.0000**	**16,015.1800**

3.10 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,026.4539	1,026.4539	0.2384	0.0000	1,031.4600
Total											**0.0000**	**1,026.4539**	**1,026.4539**	**0.2384**	**0.0000**	**1,031.4600**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,764.6664	5,764.6664	0.0382	0.0000	5,765.4678
Worker											0.0000	10,136.1271	10,136.1271	0.4360	0.0000	10,145.2835
Total											**0.0000**	**15,900.7935**	**15,900.7935**	**0.4742**	**0.0000**	**15,910.7513**

3.10 Building Construction - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,026.4527	1,026.4527	0.2384	0.0000	1,031.4588
Total											**0.0000**	**1,026.4527**	**1,026.4527**	**0.2384**	**0.0000**	**1,031.4588**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,764.6664	5,764.6664	0.0382	0.0000	5,765.4678
Worker											0.0000	10,136.1271	10,136.1271	0.4360	0.0000	10,145.2835
Total											**0.0000**	**15,900.7935**	**15,900.7935**	**0.4742**	**0.0000**	**15,910.7513**

3.10 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,022.5211	1,022.5211	0.2375	0.0000	1,027.5080
Total											**0.0000**	**1,022.5211**	**1,022.5211**	**0.2375**	**0.0000**	**1,027.5080**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,742.6547	5,742.6547	0.0378	0.0000	5,743.4492
Worker											0.0000	10,007.3417	10,007.3417	0.4236	0.0000	10,016.2379
Total											**0.0000**	**15,749.9965**	**15,749.9965**	**0.4615**	**0.0000**	**15,759.6871**

3.10 Building Construction - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,022.5199	1,022.5199	0.2375	0.0000	1,027.5068
Total											**0.0000**	**1,022.5199**	**1,022.5199**	**0.2375**	**0.0000**	**1,027.5068**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,742.6547	5,742.6547	0.0378	0.0000	5,743.4492
Worker											0.0000	10,007.3417	10,007.3417	0.4236	0.0000	10,016.2379
Total											**0.0000**	**15,749.9965**	**15,749.9965**	**0.4615**	**0.0000**	**15,759.6871**

3.10 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,026.4539	1,026.4539	0.2384	0.0000	1,031.4600
Total											**0.0000**	**1,026.4539**	**1,026.4539**	**0.2384**	**0.0000**	**1,031.4600**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,764.9502	5,764.9502	0.0380	0.0000	5,765.7487
Worker											0.0000	9,967.1808	9,967.1808	0.4146	0.0000	9,975.8877
Total											**0.0000**	**15,732.1310**	**15,732.1310**	**0.4526**	**0.0000**	**15,741.6364**

3.10 Building Construction - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,026.452 7	1,026.452 7	0.2384	0.0000	1,031.458 8
Total											**0.0000**	**1,026.452 7**	**1,026.452 7**	**0.2384**	**0.0000**	**1,031.458 8**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,764.950 2	5,764.950 2	0.0380	0.0000	5,765.748 7
Worker											0.0000	9,967.180 8	9,967.180 8	0.4146	0.0000	9,975.887 7
Total											**0.0000**	**15,732.13 10**	**15,732.13 10**	**0.4526**	**0.0000**	**15,741.63 64**

3.10 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,161.2950	1,161.2950	0.0466	0.0000	1,162.2727
Total											**0.0000**	**1,161.2950**	**1,161.2950**	**0.0466**	**0.0000**	**1,162.2727**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,765.0114	5,765.0114	0.0381	0.0000	5,765.8109
Worker											0.0000	9,899.2943	9,899.2943	0.4046	0.0000	9,907.7902
Total											**0.0000**	**15,664.3057**	**15,664.3057**	**0.4426**	**0.0000**	**15,673.6011**

3.10 Building Construction - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	1,161.2936	1,161.2936	0.0466	0.0000	1,162.2713
Total											**0.0000**	**1,161.2936**	**1,161.2936**	**0.0466**	**0.0000**	**1,162.2713**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	5,765.0114	5,765.0114	0.0381	0.0000	5,765.8109
Worker											0.0000	9,899.2943	9,899.2943	0.4046	0.0000	9,907.7902
Total											**0.0000**	**15,664.3057**	**15,664.3057**	**0.4426**	**0.0000**	**15,673.6011**

3.11 Paving - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	140.2269	140.2269	0.0454	0.0000	141.1793
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**140.2269**	**140.2269**	**0.0454**	**0.0000**	**141.1793**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	18.8862	18.8862	8.3000e-004	0.0000	18.9036
Total											**0.0000**	**18.8862**	**18.8862**	**8.3000e-004**	**0.0000**	**18.9036**

3.11 Paving - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	140.2267	140.2267	0.0454	0.0000	141.1791
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**140.2267**	**140.2267**	**0.0454**	**0.0000**	**141.1791**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	18.8862	18.8862	8.3000e-004	0.0000	18.9036
Total											**0.0000**	**18.8862**	**18.8862**	**8.3000e-004**	**0.0000**	**18.9036**

3.12 Improvements - Streets (Phase 3) - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	31.9484	31.9484	0.0103	0.0000	32.1654
Total											**0.0000**	**31.9484**	**31.9484**	**0.0103**	**0.0000**	**32.1654**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.1306	1.1306	5.0000e-005	0.0000	1.1316
Total											**0.0000**	**1.1306**	**1.1306**	**5.0000e-005**	**0.0000**	**1.1316**

3.12 Improvements - Streets (Phase 3) - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	31.9484	31.9484	0.0103	0.0000	32.1654
Total											**0.0000**	**31.9484**	**31.9484**	**0.0103**	**0.0000**	**32.1654**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.1306	1.1306	5.0000e-005	0.0000	1.1316
Total											**0.0000**	**1.1306**	**1.1306**	**5.0000e-005**	**0.0000**	**1.1316**

3.13 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	78.1934	78.1934	4.2700e-003	0.0000	78.2830
Total											**0.0000**	**78.1934**	**78.1934**	**4.2700e-003**	**0.0000**	**78.2830**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,373.0807	1,373.0807	0.0601	0.0000	1,374.3426
Total											**0.0000**	**1,373.0807**	**1,373.0807**	**0.0601**	**0.0000**	**1,374.3426**

3.13 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	78.1933	78.1933	4.2700e-003	0.0000	78.2829
Total											**0.0000**	**78.1933**	**78.1933**	**4.2700e-003**	**0.0000**	**78.2829**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,373.0807	1,373.0807	0.0601	0.0000	1,374.3426
Total											**0.0000**	**1,373.0807**	**1,373.0807**	**0.0601**	**0.0000**	**1,374.3426**

3.13 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.6199	116.6199	6.3600e-003	0.0000	116.7535
Total											**0.0000**	**116.6199**	**116.6199**	**6.3600e-003**	**0.0000**	**116.7535**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2,026.9334	2,026.9334	0.0872	0.0000	2,028.7644
Total											**0.0000**	**2,026.9334**	**2,026.9334**	**0.0872**	**0.0000**	**2,028.7644**

3.13 Architectural Coating - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.6197	116.6197	6.3600e-003	0.0000	116.7533
Total											**0.0000**	**116.6197**	**116.6197**	**6.3600e-003**	**0.0000**	**116.7533**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2,026.9334	2,026.9334	0.0872	0.0000	2,028.7644
Total											**0.0000**	**2,026.9334**	**2,026.9334**	**0.0872**	**0.0000**	**2,028.7644**

3.13 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.1731	116.1731	6.3400e-003	0.0000	116.3061
Total											**0.0000**	**116.1731**	**116.1731**	**6.3400e-003**	**0.0000**	**116.3061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2,001.1800	2,001.1800	0.0847	0.0000	2,002.9590
Total											**0.0000**	**2,001.1800**	**2,001.1800**	**0.0847**	**0.0000**	**2,002.9590**

3.13 Architectural Coating - 2028

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.1729	116.1729	6.3400e-003	0.0000	116.3060
Total											**0.0000**	**116.1729**	**116.1729**	**6.3400e-003**	**0.0000**	**116.3060**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2,001.1800	2,001.1800	0.0847	0.0000	2,002.9590
Total											**0.0000**	**2,001.1800**	**2,001.1800**	**0.0847**	**0.0000**	**2,002.9590**

3.13 Architectural Coating - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.6199	116.6199	6.3600e-003	0.0000	116.7535
Total											**0.0000**	**116.6199**	**116.6199**	**6.3600e-003**	**0.0000**	**116.7535**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,993.1490	1,993.1490	0.0829	0.0000	1,994.8901
Total											**0.0000**	**1,993.1490**	**1,993.1490**	**0.0829**	**0.0000**	**1,994.8901**

3.13 Architectural Coating - 2029

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.6197	116.6197	6.3600e-003	0.0000	116.7533
Total											**0.0000**	**116.6197**	**116.6197**	**6.3600e-003**	**0.0000**	**116.7533**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,993.1490	1,993.1490	0.0829	0.0000	1,994.8901
Total											**0.0000**	**1,993.1490**	**1,993.1490**	**0.0829**	**0.0000**	**1,994.8901**

3.13 Architectural Coating - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.6199	116.6199	4.7200e-003	0.0000	116.7190
Total											**0.0000**	**116.6199**	**116.6199**	**4.7200e-003**	**0.0000**	**116.7190**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,979.5736	1,979.5736	0.0809	0.0000	1,981.2726
Total											**0.0000**	**1,979.5736**	**1,979.5736**	**0.0809**	**0.0000**	**1,981.2726**

3.13 Architectural Coating - 2030

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	116.6197	116.6197	4.7200e-003	0.0000	116.7188
Total											**0.0000**	**116.6197**	**116.6197**	**4.7200e-003**	**0.0000**	**116.7188**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1,979.5736	1,979.5736	0.0809	0.0000	1,981.2726
Total											**0.0000**	**1,979.5736**	**1,979.5736**	**0.0809**	**0.0000**	**1,981.2726**

3.14 Improvements - Water (Phase 2) - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	299.4889	299.4889	0.0969	0.0000	301.5229
Total											**0.0000**	**299.4889**	**299.4889**	**0.0969**	**0.0000**	**301.5229**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	13.5669	13.5669	5.9000e-004	0.0000	13.5793
Total											**0.0000**	**13.5669**	**13.5669**	**5.9000e-004**	**0.0000**	**13.5793**

3.14 Improvements - Water (Phase 2) - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	299.4885	299.4885	0.0969	0.0000	301.5226
Total											**0.0000**	**299.4885**	**299.4885**	**0.0969**	**0.0000**	**301.5226**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	13.5669	13.5669	5.9000e-004	0.0000	13.5793
Total											**0.0000**	**13.5669**	**13.5669**	**5.9000e-004**	**0.0000**	**13.5793**

3.15 Improvements - Streets/Roads (Phase 2) - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	84.5363	84.5363	0.0273	0.0000	85.1105
Total											**0.0000**	**84.5363**	**84.5363**	**0.0273**	**0.0000**	**85.1105**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.3571	3.3571	1.4000e-004	0.0000	3.3601
Total											**0.0000**	**3.3571**	**3.3571**	**1.4000e-004**	**0.0000**	**3.3601**

3.15 Improvements - Streets/Roads (Phase 2) - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	84.5362	84.5362	0.0273	0.0000	85.1104
Total											**0.0000**	**84.5362**	**84.5362**	**0.0273**	**0.0000**	**85.1104**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.3571	3.3571	1.4000e-004	0.0000	3.3601
Total											**0.0000**	**3.3571**	**3.3571**	**1.4000e-004**	**0.0000**	**3.3601**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Light Industry	0.00	0.00	0.00		
Golf Course	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Hotel	0.00	0.00	0.00		
Industrial Park	0.00	0.00	0.00		
Office Park	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Elementary School	18.50	10.10	7.90	65.00	30.00	5.00	63	25	12
General Light Industry	18.50	10.10	7.90	59.00	28.00	13.00	92	5	3
Golf Course	18.50	10.10	7.90	33.00	48.00	19.00	52	39	9
Health Club	18.50	10.10	7.90	16.90	64.10	19.00	52	39	9
Hotel	18.50	10.10	7.90	19.40	61.60	19.00	58	38	4
Industrial Park	18.50	10.10	7.90	59.00	28.00	13.00	79	19	2
Office Park	18.50	10.10	7.90	33.00	48.00	19.00	82	15	3
Regional Shopping Center	18.50	10.10	7.90	16.30	64.70	19.00	54	35	11
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.508453	0.058534	0.182003	0.128323	0.043028	0.007073	0.018375	0.041612	0.002788	0.003272	0.003888	0.000508	0.002143

5.0 Energy Detail

4.4 Fleet Mix

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	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Golf Course	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Industrial Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Golf Course	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Industrial Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	110.5196	110.5196	0.1054	0.0000	112.7325
Unmitigated											0.0000	110.5196	110.5196	0.1054	0.0000	112.7325

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	110.5196	110.5196	0.1054	0.0000	112.7325
Total											**0.0000**	**110.5196**	**110.5196**	**0.1054**	**0.0000**	**112.7325**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	110.5196	110.5196	0.1054	0.0000	112.7325
Total											**0.0000**	**110.5196**	**110.5196**	**0.1054**	**0.0000**	**112.7325**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Golf Course	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Golf Course	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Construction Stage 5

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	62.50	1000sqft	4.50	62,500.00	0
Elementary School	750.00	Student	10.00	60,000.00	0
Health Club	6.70	1000sqft	3.20	6,700.00	0
Hotel	286.00	Room	14.30	200,000.00	0
Condo/Townhouse	1,297.00	Dwelling Unit	45.10	1,297,000.00	4086
Single Family Housing	428.00	Dwelling Unit	68.80	770,400.00	1348
Regional Shopping Center	187.50	1000sqft	13.40	187,500.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2030

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Based on project construction schedule.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Trips and VMT - Default Worker and Vendor Trips. Hauling trips in the Grading Indirect phase account for hauling trips for vegetation.

Grading -

Vehicle Trips - Operational emissions calculated separately.

Woodstoves - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Solid Waste - Operational emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	1,631.00
tblConstructionPhase	NumDays	3,100.00	1,719.00
tblConstructionPhase	NumDays	310.00	351.00
tblConstructionPhase	NumDays	220.00	129.00
tblConstructionPhase	PhaseEndDate	2/26/2027	12/31/2026
tblConstructionPhase	PhaseEndDate	6/30/2027	11/26/2020

tblConstructionPhase	PhaseEndDate	3/9/2020	5/3/2019
tblConstructionPhase	PhaseEndDate	1/28/2027	5/31/2021
tblConstructionPhase	PhaseStartDate	11/27/2020	10/1/2020
tblConstructionPhase	PhaseStartDate	5/30/2020	6/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2027	6/1/2020
tblConstructionPhase	PhaseStartDate	5/7/2019	7/1/2018
tblConstructionPhase	PhaseStartDate	5/4/2019	5/6/2019
tblConstructionPhase	PhaseStartDate	9/21/2019	9/23/2019
tblConstructionPhase	PhaseStartDate	5/2/2020	5/4/2020
tblConstructionPhase	PhaseStartDate	1/1/2027	5/4/2021
tblEnergyUse	LightingElect	1,001.10	0.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.49	0.00
tblEnergyUse	LightingElect	7.04	0.00
tblEnergyUse	LightingElect	1,608.84	0.00
tblEnergyUse	NT24E	3,126.97	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	2.89	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	0.00
tblEnergyUse	NT24NG	2,951.00	0.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	4.45	0.00

tblEnergyUse	NT24NG	4.06	0.00
tblEnergyUse	NT24NG	0.49	0.00
tblEnergyUse	NT24NG	5,856.92	0.00
tblEnergyUse	T24E	269.81	0.00
tblEnergyUse	T24E	2.13	0.00
tblEnergyUse	T24E	5.62	0.00
tblEnergyUse	T24E	2.75	0.00
tblEnergyUse	T24E	3.12	0.00
tblEnergyUse	T24E	4.90	0.00
tblEnergyUse	T24E	596.10	0.00
tblEnergyUse	T24NG	11,455.03	0.00
tblEnergyUse	T24NG	9.81	0.00
tblEnergyUse	T24NG	10.54	0.00
tblEnergyUse	T24NG	14.36	0.00
tblEnergyUse	T24NG	20.96	0.00
tblEnergyUse	T24NG	1.21	0.00
tblEnergyUse	T24NG	23,944.02	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	1,102.45	0.00
tblFireplaces	NumberGas	363.80	0.00
tblFireplaces	NumberNoFireplace	129.70	0.00
tblFireplaces	NumberNoFireplace	42.80	0.00
tblFireplaces	NumberWood	64.85	0.00

tblFireplaces	NumberWood	21.40	0.00
tblLandUse	LandUseSquareFeet	62,702.53	60,000.00
tblLandUse	LandUseSquareFeet	415,272.00	200,000.00
tblLandUse	LotAcreage	1.43	4.50
tblLandUse	LotAcreage	1.44	10.00
tblLandUse	LotAcreage	0.15	3.20
tblLandUse	LotAcreage	9.53	14.30
tblLandUse	LotAcreage	81.06	45.10
tblLandUse	LotAcreage	138.96	68.80
tblLandUse	LotAcreage	4.30	13.40
tblLandUse	Population	3,709.00	4,086.00
tblLandUse	Population	1,224.00	1,348.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	125.00	89.00
tblOffRoadEquipment	HorsePower	130.00	82.00
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tblOffRoadEquipment	HorsePower	205.00	206.00
tblOffRoadEquipment	HorsePower	208.00	82.00
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tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	174.00	162.00
tblOffRoadEquipment	HorsePower	400.00	381.00

tblOffRoadEquipment	HorsePower	167.00	196.00
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tblOffRoadEquipment	UsageHours	6.00	8.00
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tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	7.00

tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2014	2030
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	596.62	0.00
tblSolidWaste	SolidWasteGenerationRate	136.88	0.00
tblSolidWaste	SolidWasteGenerationRate	58.13	0.00
tblSolidWaste	SolidWasteGenerationRate	38.19	0.00
tblSolidWaste	SolidWasteGenerationRate	156.59	0.00
tblSolidWaste	SolidWasteGenerationRate	196.88	0.00
tblSolidWaste	SolidWasteGenerationRate	552.68	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	22,464.00
tblVehicleTrips	ST_TR	7.16	0.00
tblVehicleTrips	ST_TR	2.37	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	ST_TR	10.08	0.00
tblVehicleTrips	SU_TR	6.07	0.00
tblVehicleTrips	SU_TR	0.98	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	SU_TR	8.77	0.00
tblVehicleTrips	WD_TR	6.59	0.00

tblVehicleTrips	WD_TR	1.29	0.00
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tblVehicleTrips	WD_TR	9.57	0.00
tblWater	IndoorWaterUseRate	84,504,771.23	0.00
tblWater	IndoorWaterUseRate	1,818,180.00	0.00
tblWater	IndoorWaterUseRate	11,108,359.25	0.00
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tblWater	IndoorWaterUseRate	27,885,922.97	0.00
tblWater	OutdoorWaterUseRate	53,274,747.08	0.00
tblWater	OutdoorWaterUseRate	4,675,320.00	0.00
tblWater	OutdoorWaterUseRate	6,808,349.22	0.00
tblWater	OutdoorWaterUseRate	242,868.46	0.00
tblWater	OutdoorWaterUseRate	806,099.58	0.00
tblWater	OutdoorWaterUseRate	8,512,366.38	0.00
tblWater	OutdoorWaterUseRate	17,580,255.78	0.00
tblWoodstoves	NumberCatalytic	64.85	0.00
tblWoodstoves	NumberCatalytic	21.40	0.00
tblWoodstoves	NumberNoncatalytic	64.85	0.00
tblWoodstoves	NumberNoncatalytic	21.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018											0.0000	4,235.2684	4,235.2684	1.1187	0.0000	4,258.7613
2019											0.0000	2,360.9147	2,360.9147	0.6656	0.0000	2,374.8915
2020											0.0000	2,429.7868	2,429.7868	0.2562	0.0000	2,435.1674
2021											0.0000	3,624.6461	3,624.6461	0.2266	0.0000	3,629.4045
2022											0.0000	3,479.7440	3,479.7440	0.1914	0.0000	3,483.7644
2023											0.0000	3,439.4987	3,439.4987	0.1852	0.0000	3,443.3878
2024											0.0000	3,450.3266	3,450.3266	0.1830	0.0000	3,454.1685
2025											0.0000	3,407.1851	3,407.1851	0.1781	0.0000	3,410.9242
2026											0.0000	3,380.6230	3,380.6230	0.1749	0.0000	3,384.2961
Total											**0.0000**	**29,807.9935**	**29,807.9935**	**3.1796**	**0.0000**	**29,874.7657**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018											0.0000	4,235.2642	4,235.2642	1.1187	0.0000	4,258.7571
2019											0.0000	2,360.9122	2,360.9122	0.6656	0.0000	2,374.8890
2020											0.0000	2,429.7861	2,429.7861	0.2562	0.0000	2,435.1667
2021											0.0000	3,624.6455	3,624.6455	0.2266	0.0000	3,629.4039
2022											0.0000	3,479.7436	3,479.7436	0.1914	0.0000	3,483.7639
2023											0.0000	3,439.4983	3,439.4983	0.1852	0.0000	3,443.3874
2024											0.0000	3,450.3262	3,450.3262	0.1830	0.0000	3,454.1681
2025											0.0000	3,407.1846	3,407.1846	0.1781	0.0000	3,410.9238
2026											0.0000	3,380.6226	3,380.6226	0.1749	0.0000	3,384.2956
Total											**0.0000**	**29,807.9832**	**29,807.9832**	**3.1796**	**0.0000**	**29,874.7554**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**29.0907**	**29.0907**	**0.0278**	**0.0000**	**29.6738**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**29.0907**	**29.0907**	**0.0278**	**0.0000**	**29.6738**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading - Indirect	Grading	1/1/2018	5/6/2019	5	351	
2	Improvements - Sewers	Trenching	7/1/2018	5/3/2019	5	220	
3	Improvements - Storm Drains	Trenching	5/6/2019	9/20/2019	5	100	
4	Improvements - Water	Trenching	9/23/2019	5/1/2020	5	160	
5	Improvements - Streets (Year 2020)	Trenching	5/4/2020	5/29/2020	5	20	
6	Building Construction	Building Construction	6/1/2020	12/31/2026	5	1719	
7	Paving	Paving	6/1/2020	11/26/2020	5	129	
8	Architectural Coating	Architectural Coating	10/1/2020	12/31/2026	5	1631	
9	Improvements - Streets (Year 2021)	Trenching	5/4/2021	5/31/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 4,186,485; Residential Outdoor: 1,395,495; Non-Residential Indoor: 775,050; Non-Residential Outdoor: 258,350 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading - Indirect	Crawler Tractors	3	10.00	82	0.43
Grading - Indirect	Excavators	2	10.00	157	0.38
Grading - Indirect	Graders	2	10.00	162	0.41
Grading - Indirect	Off-Highway Trucks	2	10.00	381	0.38
Grading - Indirect	Other Material Handling Equipment	4	10.00	196	0.40
Grading - Indirect	Rubber Tired Dozers	2	10.00	358	0.40
Grading - Indirect	Scrapers	6	10.00	356	0.48
Improvements - Sewers	Bore/Drill Rigs	3	10.00	206	0.50

Improvements - Sewers	Cranes	3	10.00	226	0.29
Improvements - Sewers	Excavators	3	10.00	157	0.38
Improvements - Sewers	Rollers	3	10.00	84	0.38
Improvements - Sewers	Rubber Tired Loaders	3	10.00	200	0.36
Improvements - Storm Drains	Cranes	3	10.00	226	0.29
Improvements - Storm Drains	Excavators	3	10.00	157	0.38
Improvements - Storm Drains	Graders	3	10.00	162	0.41
Improvements - Storm Drains	Rollers	3	10.00	84	0.38
Improvements - Storm Drains	Rubber Tired Loaders	3	10.00	200	0.36
Improvements - Water	Cranes	3	10.00	226	0.29
Improvements - Water	Excavators	3	10.00	157	0.38
Improvements - Water	Rollers	3	10.00	84	0.38
Improvements - Water	Rubber Tired Loaders	3	10.00	200	0.36
Improvements - Streets (Year 2020)	Graders	3	10.00	162	0.41
Improvements - Streets (Year 2020)	Pavers	3	10.00	89	0.42
Improvements - Streets (Year 2020)	Rollers	3	10.00	84	0.38
Improvements - Streets (Year 2020)	Scrapers	3	10.00	356	0.48
Building Construction	Cranes	2	4.00	226	0.29
Building Construction	Forklifts	3	7.00	89	0.20
Building Construction	Generator Sets	2	5.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	3	7.00	46	0.45
Paving	Cement and Mortar Mixers	2	7.00	9	0.56
Paving	Pavers	1	8.00	89	0.42
Paving	Paving Equipment	2	7.00	82	0.36
Paving	Rollers	2	5.00	84	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48
Improvements - Streets (Year 2021)	Graders	3	10.00	162	0.41

Improvements - Streets (Year 2021)	Pavers	3	10.00	89	0.42
Improvements - Streets (Year 2021)	Rollers	3	10.00	84	0.38
Improvements - Streets (Year 2021)	Scrapers	3	10.00	356	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading - Indirect	21	53.00	0.00	22,464.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Sewers	15	38.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Storm Drains	15	38.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Water	12	30.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets (Year 2020)	12	30.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	12	1,280.00	269.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	256.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets (Year 2021)	12	30.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - Indirect - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,921.4732	2,921.4732	0.9095	0.0000	2,940.5726
Total											**0.0000**	**2,921.4732**	**2,921.4732**	**0.9095**	**0.0000**	**2,940.5726**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	551.2742	551.2742	4.2100e-003	0.0000	551.3627
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	91.8882	91.8882	4.7900e-003	0.0000	91.9889
Total											**0.0000**	**643.1624**	**643.1624**	**9.0000e-003**	**0.0000**	**643.3515**

3.2 Grading - Indirect - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,921.4697	2,921.4697	0.9095	0.0000	2,940.5691
Total											**0.0000**	**2,921.4697**	**2,921.4697**	**0.9095**	**0.0000**	**2,940.5691**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	551.2742	551.2742	4.2100e-003	0.0000	551.3627
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	91.8882	91.8882	4.7900e-003	0.0000	91.9889
Total											**0.0000**	**643.1624**	**643.1624**	**9.0000e-003**	**0.0000**	**643.3515**

3.2 Grading - Indirect - 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	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	991.0288	991.0288	0.3136	0.0000	997.6134
Total											**0.0000**	**991.0288**	**991.0288**	**0.3136**	**0.0000**	**997.6134**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	186.2348	186.2348	1.4400e-003	0.0000	186.2650
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	30.4422	30.4422	1.5500e-003	0.0000	30.4747
Total											**0.0000**	**216.6770**	**216.6770**	**2.9900e-003**	**0.0000**	**216.7397**

3.2 Grading - Indirect - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	991.0276	991.0276	0.3136	0.0000	997.6122
Total											**0.0000**	**991.0276**	**991.0276**	**0.3136**	**0.0000**	**997.6122**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	186.2348	186.2348	1.4400e-003	0.0000	186.2650
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	30.4422	30.4422	1.5500e-003	0.0000	30.4747
Total											**0.0000**	**216.6770**	**216.6770**	**2.9900e-003**	**0.0000**	**216.7397**

3.3 Improvements - Sewers - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	637.5656	637.5656	0.1985	0.0000	641.7337
Total											**0.0000**	**637.5656**	**637.5656**	**0.1985**	**0.0000**	**641.7337**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	33.0673	33.0673	1.7200e-003	0.0000	33.1035
Total											**0.0000**	**33.0673**	**33.0673**	**1.7200e-003**	**0.0000**	**33.1035**

3.3 Improvements - Sewers - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	637.5648	637.5648	0.1985	0.0000	641.7330
Total											**0.0000**	**637.5648**	**637.5648**	**0.1985**	**0.0000**	**641.7330**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	33.0673	33.0673	1.7200e-003	0.0000	33.1035
Total											**0.0000**	**33.0673**	**33.0673**	**1.7200e-003**	**0.0000**	**33.1035**

3.3 Improvements - Sewers - 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	tons/yr										MT/yr					
Off-Road											0.0000	425.9091	425.9091	0.1348	0.0000	428.7389
Total											**0.0000**	**425.9091**	**425.9091**	**0.1348**	**0.0000**	**428.7389**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	21.5840	21.5840	1.1000e-003	0.0000	21.6070
Total											**0.0000**	**21.5840**	**21.5840**	**1.1000e-003**	**0.0000**	**21.6070**

3.3 Improvements - Sewers - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	425.9086	425.9086	0.1348	0.0000	428.7384
Total											**0.0000**	**425.9086**	**425.9086**	**0.1348**	**0.0000**	**428.7384**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	21.5840	21.5840	1.1000e-003	0.0000	21.6070
Total											**0.0000**	**21.5840**	**21.5840**	**1.1000e-003**	**0.0000**	**21.6070**

3.4 Improvements - Storm Drains - 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	tons/yr										MT/yr					
Off-Road											0.0000	428.9770	428.9770	0.1357	0.0000	431.8272
Total											**0.0000**	**428.9770**	**428.9770**	**0.1357**	**0.0000**	**431.8272**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	24.2517	24.2517	1.2300e-003	0.0000	24.2775
Total											**0.0000**	**24.2517**	**24.2517**	**1.2300e-003**	**0.0000**	**24.2775**

3.4 Improvements - Storm Drains - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	428.9765	428.9765	0.1357	0.0000	431.8267
Total											**0.0000**	**428.9765**	**428.9765**	**0.1357**	**0.0000**	**431.8267**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	24.2517	24.2517	1.2300e-003	0.0000	24.2775
Total											**0.0000**	**24.2517**	**24.2517**	**1.2300e-003**	**0.0000**	**24.2775**

3.5 Improvements - Water - 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	tons/yr										MT/yr					
Off-Road											0.0000	238.7020	238.7020	0.0755	0.0000	240.2880
Total											**0.0000**	**238.7020**	**238.7020**	**0.0755**	**0.0000**	**240.2880**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	13.7852	13.7852	7.0000e-004	0.0000	13.7999
Total											**0.0000**	**13.7852**	**13.7852**	**7.0000e-004**	**0.0000**	**13.7999**

3.5 Improvements - Water - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	238.7017	238.7017	0.0755	0.0000	240.2877
Total											**0.0000**	**238.7017**	**238.7017**	**0.0755**	**0.0000**	**240.2877**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	13.7852	13.7852	7.0000e-004	0.0000	13.7999
Total											**0.0000**	**13.7852**	**13.7852**	**7.0000e-004**	**0.0000**	**13.7999**

3.5 Improvements - Water - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	285.3955	285.3955	0.0923	0.0000	287.3338
Total											**0.0000**	**285.3955**	**285.3955**	**0.0923**	**0.0000**	**287.3338**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	16.1713	16.1713	8.1000e-004	0.0000	16.1883
Total											**0.0000**	**16.1713**	**16.1713**	**8.1000e-004**	**0.0000**	**16.1883**

3.5 Improvements - Water - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	285.3951	285.3951	0.0923	0.0000	287.3335
Total											**0.0000**	**285.3951**	**285.3951**	**0.0923**	**0.0000**	**287.3335**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	16.1713	16.1713	8.1000e-004	0.0000	16.1883
Total											**0.0000**	**16.1713**	**16.1713**	**8.1000e-004**	**0.0000**	**16.1883**

3.6 Improvements - Streets (Year 2020) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	87.0759	87.0759	0.0282	0.0000	87.6673
Total											**0.0000**	**87.0759**	**87.0759**	**0.0282**	**0.0000**	**87.6673**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.6753	3.6753	1.8000e-004	0.0000	3.6792
Total											**0.0000**	**3.6753**	**3.6753**	**1.8000e-004**	**0.0000**	**3.6792**

3.6 Improvements - Streets (Year 2020) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	87.0758	87.0758	0.0282	0.0000	87.6672
Total											**0.0000**	**87.0758**	**87.0758**	**0.0282**	**0.0000**	**87.6672**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.6753	3.6753	1.8000e-004	0.0000	3.6792
Total											**0.0000**	**3.6753**	**3.6753**	**1.8000e-004**	**0.0000**	**3.6792**

3.7 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	199.7966	199.7966	0.0434	0.0000	200.7082
Total											**0.0000**	**199.7966**	**199.7966**	**0.0434**	**0.0000**	**200.7082**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	433.2154	433.2154	3.1500e-003	0.0000	433.2814
Worker											0.0000	1,207.4574	1,207.4574	0.0606	0.0000	1,208.7292
Total											**0.0000**	**1,640.6728**	**1,640.6728**	**0.0637**	**0.0000**	**1,642.0106**

3.7 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	199.7964	199.7964	0.0434	0.0000	200.7079
Total											**0.0000**	**199.7964**	**199.7964**	**0.0434**	**0.0000**	**200.7079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	433.2154	433.2154	3.1500e-003	0.0000	433.2814
Worker											0.0000	1,207.4574	1,207.4574	0.0606	0.0000	1,208.7292
Total											**0.0000**	**1,640.6728**	**1,640.6728**	**0.0637**	**0.0000**	**1,642.0106**

3.7 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	338.6416	338.6416	0.0720	0.0000	340.1526
Total											**0.0000**	**338.6416**	**338.6416**	**0.0720**	**0.0000**	**340.1526**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	733.6505	733.6505	5.3600e-003	0.0000	733.7631
Worker											0.0000	2,014.3220	2,014.3220	0.0982	0.0000	2,016.3847
Total											**0.0000**	**2,747.9725**	**2,747.9725**	**0.1036**	**0.0000**	**2,750.1478**

3.7 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	338.6412	338.6412	0.0720	0.0000	340.1522
Total											**0.0000**	**338.6412**	**338.6412**	**0.0720**	**0.0000**	**340.1522**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	733.6505	733.6505	5.3600e-003	0.0000	733.7631
Worker											0.0000	2,014.3220	2,014.3220	0.0982	0.0000	2,016.3847
Total											**0.0000**	**2,747.9725**	**2,747.9725**	**0.1036**	**0.0000**	**2,750.1478**

3.7 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	337.4346	337.4346	0.0707	0.0000	338.9194
Total											**0.0000**	**337.4346**	**337.4346**	**0.0707**	**0.0000**	**338.9194**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	730.2367	730.2367	5.4600e-003	0.0000	730.3513
Worker											0.0000	1,973.1802	1,973.1802	0.0937	0.0000	1,975.1473
Total											**0.0000**	**2,703.4170**	**2,703.4170**	**0.0991**	**0.0000**	**2,705.4986**

3.7 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	337.4342	337.4342	0.0707	0.0000	338.9190
Total											**0.0000**	**337.4342**	**337.4342**	**0.0707**	**0.0000**	**338.9190**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	730.2367	730.2367	5.4600e-003	0.0000	730.3513
Worker											0.0000	1,973.1802	1,973.1802	0.0937	0.0000	1,975.1473
Total											**0.0000**	**2,703.4170**	**2,703.4170**	**0.0991**	**0.0000**	**2,705.4986**

3.7 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	337.5130	337.5130	0.0697	0.0000	338.9773
Total											**0.0000**	**337.5130**	**337.5130**	**0.0697**	**0.0000**	**338.9773**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	726.7593	726.7593	4.8900e-003	0.0000	726.8619
Worker											0.0000	1,942.4751	1,942.4751	0.0899	0.0000	1,944.3639
Total											**0.0000**	**2,669.2343**	**2,669.2343**	**0.0948**	**0.0000**	**2,671.2258**

3.7 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	337.5126	337.5126	0.0697	0.0000	338.9769
Total											**0.0000**	**337.5126**	**337.5126**	**0.0697**	**0.0000**	**338.9769**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	726.7593	726.7593	4.8900e-003	0.0000	726.8619
Worker											0.0000	1,942.4751	1,942.4751	0.0899	0.0000	1,944.3639
Total											**0.0000**	**2,669.2343**	**2,669.2343**	**0.0948**	**0.0000**	**2,671.2258**

3.7 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	340.1531	340.1531	0.0695	0.0000	341.6125
Total											**0.0000**	**340.1531**	**340.1531**	**0.0695**	**0.0000**	**341.6125**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	733.9774	733.9774	4.9900e-003	0.0000	734.0822
Worker											0.0000	1,942.9995	1,942.9995	0.0883	0.0000	1,944.8536
Total											**0.0000**	**2,676.9769**	**2,676.9769**	**0.0933**	**0.0000**	**2,678.9357**

3.7 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	340.1527	340.1527	0.0695	0.0000	341.6121
Total											**0.0000**	**340.1527**	**340.1527**	**0.0695**	**0.0000**	**341.6121**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	733.9774	733.9774	4.9900e-003	0.0000	734.0822
Worker											0.0000	1,942.9995	1,942.9995	0.0883	0.0000	1,944.8536
Total											**0.0000**	**2,676.9769**	**2,676.9769**	**0.0933**	**0.0000**	**2,678.9357**

3.7 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	338.9254	338.9254	0.0685	0.0000	340.3634
Total											**0.0000**	**338.9254**	**338.9254**	**0.0685**	**0.0000**	**340.3634**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	731.2125	731.2125	4.9900e-003	0.0000	731.3173
Worker											0.0000	1,910.5171	1,910.5171	0.0851	0.0000	1,912.3050
Total											**0.0000**	**2,641.7296**	**2,641.7296**	**0.0901**	**0.0000**	**2,643.6223**

3.7 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	338.9250	338.9250	0.0685	0.0000	340.3630
Total											**0.0000**	**338.9250**	**338.9250**	**0.0685**	**0.0000**	**340.3630**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	731.2125	731.2125	4.9900e-003	0.0000	731.3173
Worker											0.0000	1,910.5171	1,910.5171	0.0851	0.0000	1,912.3050
Total											**0.0000**	**2,641.7296**	**2,641.7296**	**0.0901**	**0.0000**	**2,643.6223**

3.7 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	338.9254	338.9254	0.0685	0.0000	340.3634
Total											**0.0000**	**338.9254**	**338.9254**	**0.0685**	**0.0000**	**340.3634**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	731.0604	731.0604	4.8300e-003	0.0000	731.1618
Worker											0.0000	1,888.5088	1,888.5088	0.0827	0.0000	1,890.2445
Total											**0.0000**	**2,619.5692**	**2,619.5692**	**0.0875**	**0.0000**	**2,621.4063**

3.7 Building Construction - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	338.9250	338.9250	0.0685	0.0000	340.3630
Total											**0.0000**	**338.9250**	**338.9250**	**0.0685**	**0.0000**	**340.3630**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	731.0604	731.0604	4.8300e-003	0.0000	731.1618
Worker											0.0000	1,888.5088	1,888.5088	0.0827	0.0000	1,890.2445
Total											**0.0000**	**2,619.5692**	**2,619.5692**	**0.0875**	**0.0000**	**2,621.4063**

3.8 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	68.0455	68.0455	0.0209	0.0000	68.4838
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**68.0455**	**68.0455**	**0.0209**	**0.0000**	**68.4838**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	14.2234	14.2234	7.1000e-004	0.0000	14.2384
Total											**0.0000**	**14.2234**	**14.2234**	**7.1000e-004**	**0.0000**	**14.2384**

3.8 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	68.0454	68.0454	0.0209	0.0000	68.4837
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**68.0454**	**68.0454**	**0.0209**	**0.0000**	**68.4837**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	14.2234	14.2234	7.1000e-004	0.0000	14.2384
Total											**0.0000**	**14.2234**	**14.2234**	**7.1000e-004**	**0.0000**	**14.2384**

3.9 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	11.2343	11.2343	8.7000e-004	0.0000	11.2526
Total											**0.0000**	**11.2343**	**11.2343**	**8.7000e-004**	**0.0000**	**11.2526**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	103.4964	103.4964	5.1900e-003	0.0000	103.6054
Total											**0.0000**	**103.4964**	**103.4964**	**5.1900e-003**	**0.0000**	**103.6054**

3.9 Architectural Coating - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	11.2343	11.2343	8.7000e-004	0.0000	11.2526
Total											**0.0000**	**11.2343**	**11.2343**	**8.7000e-004**	**0.0000**	**11.2526**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	103.4964	103.4964	5.1900e-003	0.0000	103.6054
Total											**0.0000**	**103.4964**	**103.4964**	**5.1900e-003**	**0.0000**	**103.6054**

3.9 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	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.4266	44.4266	3.0500e-003	0.0000	44.4906
Total											**0.0000**	**44.4266**	**44.4266**	**3.0500e-003**	**0.0000**	**44.4906**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	402.8644	402.8644	0.0197	0.0000	403.2770
Total											**0.0000**	**402.8644**	**402.8644**	**0.0197**	**0.0000**	**403.2770**

3.9 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.4266	44.4266	3.0500e-003	0.0000	44.4906
Total											**0.0000**	**44.4266**	**44.4266**	**3.0500e-003**	**0.0000**	**44.4906**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	402.8644	402.8644	0.0197	0.0000	403.2770
Total											**0.0000**	**402.8644**	**402.8644**	**0.0197**	**0.0000**	**403.2770**

3.9 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.2564	44.2564	2.8800e-003	0.0000	44.3169
Total											**0.0000**	**44.2564**	**44.2564**	**2.8800e-003**	**0.0000**	**44.3169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	394.6360	394.6360	0.0187	0.0000	395.0295
Total											**0.0000**	**394.6360**	**394.6360**	**0.0187**	**0.0000**	**395.0295**

3.9 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.2564	44.2564	2.8800e-003	0.0000	44.3169
Total											**0.0000**	**44.2564**	**44.2564**	**2.8800e-003**	**0.0000**	**44.3169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	394.6360	394.6360	0.0187	0.0000	395.0295
Total											**0.0000**	**394.6360**	**394.6360**	**0.0187**	**0.0000**	**395.0295**

3.9 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.2564	44.2564	2.6500e-003	0.0000	44.3120
Total											**0.0000**	**44.2564**	**44.2564**	**2.6500e-003**	**0.0000**	**44.3120**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	388.4950	388.4950	0.0180	0.0000	388.8728
Total											**0.0000**	**388.4950**	**388.4950**	**0.0180**	**0.0000**	**388.8728**

3.9 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.2564	44.2564	2.6500e-003	0.0000	44.3120
Total											**0.0000**	**44.2564**	**44.2564**	**2.6500e-003**	**0.0000**	**44.3120**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	388.4950	388.4950	0.0180	0.0000	388.8728
Total											**0.0000**	**388.4950**	**388.4950**	**0.0180**	**0.0000**	**388.8728**

3.9 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.5968	44.5968	2.5100e-003	0.0000	44.6496
Total											**0.0000**	**44.5968**	**44.5968**	**2.5100e-003**	**0.0000**	**44.6496**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	388.5999	388.5999	0.0177	0.0000	388.9707
Total											**0.0000**	**388.5999**	**388.5999**	**0.0177**	**0.0000**	**388.9707**

3.9 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.5968	44.5968	2.5100e-003	0.0000	44.6495
Total											**0.0000**	**44.5968**	**44.5968**	**2.5100e-003**	**0.0000**	**44.6495**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	388.5999	388.5999	0.0177	0.0000	388.9707
Total											**0.0000**	**388.5999**	**388.5999**	**0.0177**	**0.0000**	**388.9707**

3.9 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.4266	44.4266	2.4200e-003	0.0000	44.4775
Total											**0.0000**	**44.4266**	**44.4266**	**2.4200e-003**	**0.0000**	**44.4775**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	382.1034	382.1034	0.0170	0.0000	382.4610
Total											**0.0000**	**382.1034**	**382.1034**	**0.0170**	**0.0000**	**382.4610**

3.9 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.4266	44.4266	2.4200e-003	0.0000	44.4775
Total											**0.0000**	**44.4266**	**44.4266**	**2.4200e-003**	**0.0000**	**44.4775**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	382.1034	382.1034	0.0170	0.0000	382.4610
Total											**0.0000**	**382.1034**	**382.1034**	**0.0170**	**0.0000**	**382.4610**

3.9 Architectural Coating - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.4266	44.4266	2.4200e-003	0.0000	44.4775
Total											**0.0000**	**44.4266**	**44.4266**	**2.4200e-003**	**0.0000**	**44.4775**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	377.7018	377.7018	0.0165	0.0000	378.0489
Total											**0.0000**	**377.7018**	**377.7018**	**0.0165**	**0.0000**	**378.0489**

3.9 Architectural Coating - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	44.4266	44.4266	2.4200e-003	0.0000	44.4775
Total											**0.0000**	**44.4266**	**44.4266**	**2.4200e-003**	**0.0000**	**44.4775**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	377.7018	377.7018	0.0165	0.0000	378.0489
Total											**0.0000**	**377.7018**	**377.7018**	**0.0165**	**0.0000**	**378.0489**

3.10 Improvements - Streets (Year 2021) - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	87.1233	87.1233	0.0282	0.0000	87.7150
Total											**0.0000**	**87.1233**	**87.1233**	**0.0282**	**0.0000**	**87.7150**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.6177	3.6177	1.8000e-004	0.0000	3.6214
Total											**0.0000**	**3.6177**	**3.6177**	**1.8000e-004**	**0.0000**	**3.6214**

3.10 Improvements - Streets (Year 2021) - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	87.1232	87.1232	0.0282	0.0000	87.7149
Total											**0.0000**	**87.1232**	**87.1232**	**0.0282**	**0.0000**	**87.7149**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.6177	3.6177	1.8000e-004	0.0000	3.6214
Total											**0.0000**	**3.6177**	**3.6177**	**1.8000e-004**	**0.0000**	**3.6214**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	0.00	0.00	0.00		
Elementary School	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Hotel	0.00	0.00	0.00		
Regional Shopping Center	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3
Elementary School	18.50	10.10	7.90	65.00	30.00	5.00	63	25	12
General Office Building	18.50	10.10	7.90	33.00	48.00	19.00	77	19	4
Health Club	18.50	10.10	7.90	16.90	64.10	19.00	52	39	9
Hotel	18.50	10.10	7.90	19.40	61.60	19.00	58	38	4
Regional Shopping Center	18.50	10.10	7.90	16.30	64.70	19.00	54	35	11
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.508453	0.058534	0.182003	0.128323	0.043028	0.007073	0.018375	0.041612	0.002788	0.003272	0.003888	0.000508	0.002143

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	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Elementary School	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hotel	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Elementary School	0											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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Unmitigated											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Total											**0.0000**	**29.0907**	**29.0907**	**0.0278**	**0.0000**	**29.6738**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Total											**0.0000**	**29.0907**	**29.0907**	**0.0278**	**0.0000**	**29.6738**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0 / 0	0.0000	0.0000	0.0000	0.0000
Hotel	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Elementary School	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0	0.0000	0.0000	0.0000	0.0000
Health Club	0	0.0000	0.0000	0.0000	0.0000
Hotel	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

Construction Stage 6

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,100.00	1000sqft	53.00	1,100,000.00	0
Industrial Park	2,300.00	1000sqft	110.90	2,300,000.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2030

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 630.89 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use based on project information.

Construction Phase - Based on project construction schedule.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list. Other Material Handling Equipment is a Water Truck.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Off-road Equipment - Based on construction phase equipment list.

Trips and VMT - Default Worker and Vendor Trips. Hauling trips in the Grading Indirect phase account for hauling trips for vegetation.

Grading -

Vehicle Trips - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Solid Waste - Operational emissions calculated separately.

Table Name	Column Name	Default Value	New Value
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tblConstructionPhase	NumDays	220.00	200.00
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tblConstructionPhase	NumDays	220.00	108.00
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tblConstructionPhase	PhaseEndDate	7/5/2024	10/6/2023
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tblConstructionPhase	PhaseEndDate	7/7/2026	10/7/2025
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tblConstructionPhase	PhaseEndDate	7/6/2028	10/7/2027
tblConstructionPhase	PhaseEndDate	7/6/2029	10/6/2028
tblConstructionPhase	PhaseEndDate	7/5/2030	10/5/2029
tblConstructionPhase	PhaseEndDate	7/16/2031	10/8/2030
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tblConstructionPhase	PhaseEndDate	7/7/2023	9/29/2023
tblConstructionPhase	PhaseEndDate	7/5/2024	9/27/2024
tblConstructionPhase	PhaseEndDate	7/4/2025	9/30/2025
tblConstructionPhase	PhaseEndDate	7/7/2026	9/30/2026
tblConstructionPhase	PhaseEndDate	7/7/2027	9/30/2027
tblConstructionPhase	PhaseEndDate	7/6/2028	9/29/2028
tblConstructionPhase	PhaseEndDate	7/6/2029	9/28/2029
tblConstructionPhase	PhaseEndDate	7/15/2030	10/8/2030
tblConstructionPhase	PhaseEndDate	4/12/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	12/29/2021	9/30/2021
tblConstructionPhase	PhaseEndDate	11/17/2021	4/21/2021
tblConstructionPhase	PhaseEndDate	6/1/2021	3/31/2021
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tblConstructionPhase	PhaseStartDate	9/28/2024	1/1/2024
tblConstructionPhase	PhaseStartDate	10/1/2025	1/1/2025
tblConstructionPhase	PhaseStartDate	10/1/2026	1/1/2026

tblConstructionPhase	PhaseStartDate	10/1/2027	1/1/2027
tblConstructionPhase	PhaseStartDate	9/30/2028	1/1/2028
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tblConstructionPhase	PhaseStartDate	10/9/2030	1/1/2030
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tblConstructionPhase	PhaseStartDate	10/8/2022	1/1/2023
tblConstructionPhase	PhaseStartDate	10/7/2023	1/1/2024
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tblConstructionPhase	PhaseStartDate	10/8/2027	1/1/2028
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tblConstructionPhase	PhaseStartDate	10/6/2029	1/1/2030
tblConstructionPhase	PhaseStartDate	2/10/2021	11/1/2020
tblConstructionPhase	PhaseStartDate	4/1/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	7/29/2020	1/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	11/1/2020
tblConstructionPhase	PhaseStartDate	4/22/2021	7/1/2020
tblConstructionPhase	PhaseStartDate	10/1/2021	2/10/2021
tblConstructionPhase	PhaseStartDate	12/4/2021	6/2/2021
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	4.25	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	0.19	0.00
tblEnergyUse	T24E	5.62	0.00

tblEnergyUse	T24E	6.86	0.00
tblEnergyUse	T24NG	10.54	0.00
tblEnergyUse	T24NG	10.10	0.00
tblLandUse	LotAcreage	25.25	53.00
tblLandUse	LotAcreage	52.80	110.90
tblOffRoadEquipment	HorsePower	162.00	157.00
tblOffRoadEquipment	HorsePower	162.00	157.00
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tblOffRoadEquipment	HorsePower	125.00	89.00
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tblOffRoadEquipment	UsageHours	8.00	13.00
tblOffRoadEquipment	UsageHours	8.00	13.00
tblOffRoadEquipment	UsageHours	8.00	13.00
tblOffRoadEquipment	UsageHours	8.00	13.00
tblProjectCharacteristics	OperationalYear	2014	2030

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	2,852.00	0.00
tblSolidWaste	SolidWasteGenerationRate	1,023.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	21,824.00
tblVehicleTrips	ST_TR	2.49	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.73	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	6.96	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblWater	IndoorWaterUseRate	531,875,000.00	0.00
tblWater	IndoorWaterUseRate	195,507,122.79	0.00
tblWater	OutdoorWaterUseRate	119,826,946.23	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020											0.0000	5,983.2301	5,983.2301	1.5357	0.0000	6,015.4801
2021											0.0000	4,723.9740	4,723.9740	0.5702	0.0000	4,735.9483
2022											0.0000	3,221.4390	3,221.4390	0.1512	0.0000	3,224.6134
2023											0.0000	3,187.5321	3,187.5321	0.1463	0.0000	3,190.6046
2024											0.0000	3,176.7645	3,176.7645	0.1438	0.0000	3,179.7852
2025											0.0000	3,153.6443	3,153.6443	0.1409	0.0000	3,156.6036
2026											0.0000	3,132.9996	3,132.9996	0.1384	0.0000	3,135.9051
2027											0.0000	3,115.1950	3,115.1950	0.1363	0.0000	3,118.0572
2028											0.0000	3,099.7679	3,099.7679	0.1344	0.0000	3,102.5908
2029											0.0000	3,086.3584	3,086.3584	0.1326	0.0000	3,089.1432
2030											0.0000	3,192.1778	3,192.1778	0.0903	0.0000	3,194.0742
Total											**0.0000**	**39,073.0828**	**39,073.0828**	**3.3202**	**0.0000**	**39,142.8057**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020											0.0000	5,983.2245	5,983.2245	1.5357	0.0000	6,015.4745
2021											0.0000	4,723.9722	4,723.9722	0.5702	0.0000	4,735.9465
2022											0.0000	3,221.4387	3,221.4387	0.1512	0.0000	3,224.6131
2023											0.0000	3,187.5318	3,187.5318	0.1463	0.0000	3,190.6043
2024											0.0000	3,176.7642	3,176.7642	0.1438	0.0000	3,179.7849
2025											0.0000	3,153.6440	3,153.6440	0.1409	0.0000	3,156.6033
2026											0.0000	3,132.9993	3,132.9993	0.1384	0.0000	3,135.9048
2027											0.0000	3,115.1947	3,115.1947	0.1363	0.0000	3,118.0569
2028											0.0000	3,099.7676	3,099.7676	0.1344	0.0000	3,102.5905
2029											0.0000	3,086.3581	3,086.3581	0.1326	0.0000	3,089.1429
2030											0.0000	3,192.1774	3,192.1774	0.0903	0.0000	3,194.0739
Total											**0.0000**	**39,073.0726**	**39,073.0726**	**3.3202**	**0.0000**	**39,142.7955**

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**0.0844**	**0.0844**	**2.2000e-004**	**0.0000**	**0.0890**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Energy											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
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**0.0844**	**0.0844**	**2.2000e-004**	**0.0000**	**0.0890**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading - Direct	Grading	1/1/2020	7/28/2020	5	150	
2	Grading - Indirect	Grading	1/1/2020	4/21/2021	5	341	
3	Improvements - Sewers	Trenching	7/1/2020	2/9/2021	5	160	

4	Building Construction 0	Building Construction	11/1/2020	12/31/2020	5	44	
5	Paving	Paving	11/1/2020	3/31/2021	5	108	
6	Building Construction 1	Building Construction	1/1/2021	9/30/2021	5	195	
7	Improvements - Storm Drains	Trenching	2/10/2021	6/1/2021	5	80	
8	Architectural Coating 1	Architectural Coating	3/1/2021	12/3/2021	5	200	
9	Improvements - Water	Trenching	6/2/2021	10/19/2021	5	100	
10	Improvements - Streets	Trenching	10/20/2021	11/16/2021	5	20	
11	Building Construction 2	Building Construction	1/1/2022	9/30/2022	5	195	
12	Architectural Coating 2	Architectural Coating	1/1/2022	10/7/2022	5	200	
13	Building Construction 3	Building Construction	1/1/2023	9/29/2023	5	195	
14	Architectural Coating 3	Architectural Coating	1/1/2023	10/6/2023	5	200	
15	Building Construction 4	Building Construction	1/1/2024	9/27/2024	5	195	
16	Architectural Coating 4	Architectural Coating	1/1/2024	10/4/2024	5	200	
17	Building Construction 5	Building Construction	1/1/2025	9/30/2025	5	195	
18	Architectural Coating 5	Architectural Coating	1/1/2025	10/7/2025	5	200	
19	Building Construction 6	Building Construction	1/1/2026	9/30/2026	5	195	
20	Architectural Coating 6	Architectural Coating	1/1/2026	10/7/2026	5	200	
21	Building Construction 7	Building Construction	1/1/2027	9/30/2027	5	195	
22	Architectural Coating 7	Architectural Coating	1/1/2027	10/7/2027	5	200	
23	Building Construction 8	Building Construction	1/1/2028	9/29/2028	5	195	
24	Architectural Coating 8	Architectural Coating	1/1/2028	10/6/2028	5	200	
25	Building Construction 9	Building Construction	1/1/2029	9/28/2029	5	195	
26	Architectural Coating 9	Architectural Coating	1/1/2029	10/5/2029	5	200	
27	Building Construction 10	Building Construction	1/1/2030	10/8/2030	5	201	
28	Architectural Coating 10	Architectural Coating	1/1/2030	10/8/2030	5	201	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,100,000; Non-Residential Outdoor: 1,700,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading - Direct	Crawler Tractors	2	13.00	82	0.43
Grading - Direct	Crushing/Proc. Equipment	1	13.00	85	0.78
Grading - Direct	Excavators	1	13.00	157	0.38
Grading - Direct	Graders	2	13.00	162	0.41
Grading - Direct	Off-Highway Trucks	1	13.00	381	0.38
Grading - Direct	Other Material Handling Equipment	2	13.00	196	0.40
Grading - Direct	Rollers	2	13.00	84	0.38
Grading - Direct	Rubber Tired Dozers	1	13.00	358	0.40
Grading - Direct	Rubber Tired Loaders	1	13.00	200	0.36
Grading - Direct	Scrapers	6	13.00	356	0.48
Grading - Indirect	Crawler Tractors	2	13.00	82	0.43
Grading - Indirect	Excavators	1	13.00	157	0.38
Grading - Indirect	Graders	1	13.00	162	0.41
Grading - Indirect	Off-Highway Trucks	1	13.00	381	0.38
Grading - Indirect	Other Material Handling Equipment	3	13.00	196	0.40
Grading - Indirect	Rubber Tired Dozers	1	13.00	358	0.40
Grading - Indirect	Scrapers	5	13.00	356	0.48
Improvements - Sewers	Bore/Drill Rigs	1	13.00	206	0.50
Improvements - Sewers	Cranes	1	13.00	226	0.29
Improvements - Sewers	Excavators	2	13.00	157	0.38
Improvements - Sewers	Rollers	1	13.00	84	0.38
Improvements - Sewers	Rubber Tired Loaders	1	13.00	200	0.36

Building Construction 0	Cranes	1	7.00	226	0.29
Building Construction 0	Forklifts	3	8.00	89	0.20
Building Construction 0	Generator Sets	1	8.00	84	0.74
Building Construction 0	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 0	Welders	1	8.00	46	0.45
Paving	Pavers	1	8.00	89	0.42
Paving	Paving Equipment	2	6.00	82	0.36
Paving	Rollers	2	6.00	84	0.38
Building Construction 1	Cranes	1	7.00	226	0.29
Building Construction 1	Forklifts	3	8.00	89	0.20
Building Construction 1	Generator Sets	1	8.00	84	0.74
Building Construction 1	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 1	Welders	1	8.00	46	0.45
Improvements - Storm Drains	Cranes	1	13.00	226	0.29
Improvements - Storm Drains	Excavators	1	13.00	157	0.38
Improvements - Storm Drains	Graders	1	13.00	162	0.41
Improvements - Storm Drains	Rollers	1	13.00	84	0.38
Improvements - Storm Drains	Rubber Tired Loaders	1	13.00	200	0.36
Architectural Coating 1	Air Compressors	1	6.00	78	0.48
Improvements - Water	Cranes	1	13.00	226	0.29
Improvements - Water	Excavators	1	13.00	157	0.38
Improvements - Water	Rubber Tired Loaders	1	13.00	200	0.36
Improvements - Water	Scrapers	1	13.00	356	0.48
Improvements - Streets	Graders	1	13.00	162	0.41
Improvements - Streets	Pavers	1	13.00	89	0.42
Improvements - Streets	Rollers	1	13.00	84	0.38
Improvements - Streets	Scrapers	1	13.00	356	0.48
Building Construction 2	Cranes	1	7.00	226	0.29

Building Construction 2	Forklifts	3	8.00	89	0.20
Building Construction 2	Generator Sets	1	8.00	84	0.74
Building Construction 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 2	Welders	1	8.00	46	0.45
Architectural Coating 2	Air Compressors	1	6.00	78	0.48
Building Construction 3	Cranes	1	7.00	226	0.29
Building Construction 3	Forklifts	3	8.00	89	0.20
Building Construction 3	Generator Sets	1	8.00	84	0.74
Building Construction 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 3	Welders	1	8.00	46	0.45
Architectural Coating 3	Air Compressors	1	6.00	78	0.48
Building Construction 4	Cranes	1	7.00	226	0.29
Building Construction 4	Forklifts	3	8.00	89	0.20
Building Construction 4	Generator Sets	1	8.00	84	0.74
Building Construction 4	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 4	Welders	1	8.00	46	0.45
Architectural Coating 4	Air Compressors	1	6.00	78	0.48
Building Construction 5	Cranes	1	7.00	226	0.29
Building Construction 5	Forklifts	3	8.00	89	0.20
Building Construction 5	Generator Sets	1	8.00	84	0.74
Building Construction 5	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 5	Welders	1	8.00	46	0.45
Architectural Coating 5	Air Compressors	1	6.00	78	0.48
Building Construction 6	Cranes	1	7.00	226	0.29
Building Construction 6	Forklifts	3	8.00	89	0.20
Building Construction 6	Generator Sets	1	8.00	84	0.74
Building Construction 6	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 6	Welders	1	8.00	46	0.45

Architectural Coating 6	Air Compressors	1	6.00	78	0.48
Building Construction 7	Cranes	1	7.00	226	0.29
Building Construction 7	Forklifts	3	8.00	89	0.20
Building Construction 7	Generator Sets	1	8.00	84	0.74
Building Construction 7	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 7	Welders	1	8.00	46	0.45
Architectural Coating 7	Air Compressors	1	6.00	78	0.48
Building Construction 8	Cranes	1	7.00	226	0.29
Building Construction 8	Forklifts	3	8.00	89	0.20
Building Construction 8	Generator Sets	1	8.00	84	0.74
Building Construction 8	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 8	Welders	1	8.00	46	0.45
Architectural Coating 8	Air Compressors	1	6.00	78	0.48
Building Construction 9	Cranes	1	7.00	226	0.29
Building Construction 9	Forklifts	3	8.00	89	0.20
Building Construction 9	Generator Sets	1	8.00	84	0.74
Building Construction 9	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 9	Welders	1	8.00	46	0.45
Architectural Coating 9	Air Compressors	1	6.00	78	0.48
Building Construction 10	Cranes	1	7.00	226	0.29
Building Construction 10	Forklifts	3	8.00	89	0.20
Building Construction 10	Generator Sets	1	8.00	84	0.74
Building Construction 10	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction 10	Welders	1	8.00	46	0.45
Architectural Coating 10	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading - Direct	19	48.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Indirect	14	35.00	0.00	21,824.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Sewers	6	15.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 0	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 1	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Storm Drains	5	13.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 1	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Water	4	10.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Improvements - Streets	4	10.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 2	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 2	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 3	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 3	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 4	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 4	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 5	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 5	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 6	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 6	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 7	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 7	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 8	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 8	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction 9	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 9	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

Building Construction 10	9	1,318.00	557.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating 10	1	264.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Grading - Direct - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,798.7879	1,798.7879	0.5634	0.0000	1,810.6200
Total											**0.0000**	**1,798.7879**	**1,798.7879**	**0.5634**	**0.0000**	**1,810.6200**

3.2 Grading - Direct - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	44.1036	44.1036	2.2100e-003	0.0000	44.1500
Total											**0.0000**	**44.1036**	**44.1036**	**2.2100e-003**	**0.0000**	**44.1500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	1,798.7858	1,798.7858	0.5634	0.0000	1,810.6179
Total											**0.0000**	**1,798.7858**	**1,798.7858**	**0.5634**	**0.0000**	**1,810.6179**

3.2 Grading - Direct - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	44.1036	44.1036	2.2100e-003	0.0000	44.1500
Total											**0.0000**	**44.1036**	**44.1036**	**2.2100e-003**	**0.0000**	**44.1500**

3.3 Grading - Indirect - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,538.3164	2,538.3164	0.8209	0.0000	2,555.5562
Total											**0.0000**	**2,538.3164**	**2,538.3164**	**0.8209**	**0.0000**	**2,555.5562**

3.3 Grading - Indirect - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	530.0355	530.0355	4.2000e-003	0.0000	530.1237
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	56.1708	56.1708	2.8200e-003	0.0000	56.2299
Total											**0.0000**	**586.2063**	**586.2063**	**7.0200e-003**	**0.0000**	**586.3537**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	2,538.3134	2,538.3134	0.8209	0.0000	2,555.5532
Total											**0.0000**	**2,538.3134**	**2,538.3134**	**0.8209**	**0.0000**	**2,555.5532**

3.3 Grading - Indirect - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	530.0355	530.0355	4.2000e-003	0.0000	530.1237
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	56.1708	56.1708	2.8200e-003	0.0000	56.2299
Total											**0.0000**	**586.2063**	**586.2063**	**7.0200e-003**	**0.0000**	**586.3537**

3.3 Grading - Indirect - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	765.5501	765.5501	0.2476	0.0000	770.7496
Total											**0.0000**	**765.5501**	**765.5501**	**0.2476**	**0.0000**	**770.7496**

3.3 Grading - Indirect - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	159.7223	159.7223	1.2900e-003	0.0000	159.7494
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	16.6715	16.6715	8.1000e-004	0.0000	16.6885
Total											**0.0000**	**176.3937**	**176.3937**	**2.1000e-003**	**0.0000**	**176.4379**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	765.5492	765.5492	0.2476	0.0000	770.7487
Total											**0.0000**	**765.5492**	**765.5492**	**0.2476**	**0.0000**	**770.7487**

3.3 Grading - Indirect - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	159.7223	159.7223	1.2900e-003	0.0000	159.7494
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	16.6715	16.6715	8.1000e-004	0.0000	16.6885
Total											**0.0000**	**176.3937**	**176.3937**	**2.1000e-003**	**0.0000**	**176.4379**

3.4 Improvements - Sewers - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	316.3704	316.3704	0.1023	0.0000	318.5191
Total											**0.0000**	**316.3704**	**316.3704**	**0.1023**	**0.0000**	**318.5191**

3.4 Improvements - Sewers - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	12.1285	12.1285	6.1000e-004	0.0000	12.1413
Total											**0.0000**	**12.1285**	**12.1285**	**6.1000e-004**	**0.0000**	**12.1413**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	316.3700	316.3700	0.1023	0.0000	318.5188
Total											**0.0000**	**316.3700**	**316.3700**	**0.1023**	**0.0000**	**318.5188**

3.4 Improvements - Sewers - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	12.1285	12.1285	6.1000e-004	0.0000	12.1413
Total											**0.0000**	**12.1285**	**12.1285**	**6.1000e-004**	**0.0000**	**12.1413**

3.4 Improvements - Sewers - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	67.1561	67.1561	0.0217	0.0000	67.6122
Total											**0.0000**	**67.1561**	**67.1561**	**0.0217**	**0.0000**	**67.6122**

3.4 Improvements - Sewers - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.5324	2.5324	1.2000e-004	0.0000	2.5350
Total											**0.0000**	**2.5324**	**2.5324**	**1.2000e-004**	**0.0000**	**2.5350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	67.1560	67.1560	0.0217	0.0000	67.6121
Total											**0.0000**	**67.1560**	**67.1560**	**0.0217**	**0.0000**	**67.6121**

3.4 Improvements - Sewers - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	2.5324	2.5324	1.2000e-004	0.0000	2.5350
Total											**0.0000**	**2.5324**	**2.5324**	**1.2000e-004**	**0.0000**	**2.5350**

3.5 Building Construction 0 - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	50.7430	50.7430	0.0124	0.0000	51.0026
Total											**0.0000**	**50.7430**	**50.7430**	**0.0124**	**0.0000**	**51.0026**

3.5 Building Construction 0 - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	256.2942	256.2942	1.8600e-003	0.0000	256.3332
Worker											0.0000	355.2297	355.2297	0.0178	0.0000	355.6038
Total											**0.0000**	**611.5238**	**611.5238**	**0.0197**	**0.0000**	**611.9371**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	50.7429	50.7429	0.0124	0.0000	51.0025
Total											**0.0000**	**50.7429**	**50.7429**	**0.0124**	**0.0000**	**51.0025**

3.5 Building Construction 0 - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	256.2942	256.2942	1.8600e-003	0.0000	256.3332
Worker											0.0000	355.2297	355.2297	0.0178	0.0000	355.6038
Total											**0.0000**	**611.5238**	**611.5238**	**0.0197**	**0.0000**	**611.9371**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	21.5464	21.5464	6.9700e-003	0.0000	21.6928
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**21.5464**	**21.5464**	**6.9700e-003**	**0.0000**	**21.6928**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.5038	3.5038	1.8000e-004	0.0000	3.5075
Total											**0.0000**	**3.5038**	**3.5038**	**1.8000e-004**	**0.0000**	**3.5075**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	21.5464	21.5464	6.9700e-003	0.0000	21.6927
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**21.5464**	**21.5464**	**6.9700e-003**	**0.0000**	**21.6927**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	3.5038	3.5038	1.8000e-004	0.0000	3.5075
Total											**0.0000**	**3.5038**	**3.5038**	**1.8000e-004**	**0.0000**	**3.5075**

3.6 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	tons/yr										MT/yr					
Off-Road											0.0000	31.3368	31.3368	0.0101	0.0000	31.5497
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**31.3368**	**31.3368**	**0.0101**	**0.0000**	**31.5497**

3.6 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	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	5.0165	5.0165	2.4000e-004	0.0000	5.0217
Total											**0.0000**	**5.0165**	**5.0165**	**2.4000e-004**	**0.0000**	**5.0217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	31.3368	31.3368	0.0101	0.0000	31.5496
Paving											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**31.3368**	**31.3368**	**0.0101**	**0.0000**	**31.5496**

3.6 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	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	5.0165	5.0165	2.4000e-004	0.0000	5.0217
Total											**0.0000**	**5.0165**	**5.0165**	**2.4000e-004**	**0.0000**	**5.0217**

3.7 Building Construction 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	224.9104	224.9104	0.0542	0.0000	226.0482
Total											**0.0000**	**224.9104**	**224.9104**	**0.0542**	**0.0000**	**226.0482**

3.7 Building Construction 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,134.974 8	1,134.974 8	8.3000e-003	0.0000	1,135.149 0
Worker											0.0000	1,549.631 5	1,549.631 5	0.0756	0.0000	1,551.218 4
Total											**0.0000**	**2,684.606 3**	**2,684.606 3**	**0.0839**	**0.0000**	**2,686.367 4**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	224.9101	224.9101	0.0542	0.0000	226.0479
Total											**0.0000**	**224.9101**	**224.9101**	**0.0542**	**0.0000**	**226.0479**

3.7 Building Construction 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,134.974 8	1,134.974 8	8.3000e-003	0.0000	1,135.149 0
Worker											0.0000	1,549.631 5	1,549.631 5	0.0756	0.0000	1,551.218 4
Total											**0.0000**	**2,684.606 3**	**2,684.606 3**	**0.0839**	**0.0000**	**2,686.367 4**

3.8 Improvements - Storm Drains - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	145.4904	145.4904	0.0471	0.0000	146.4785
Total											**0.0000**	**145.4904**	**145.4904**	**0.0471**	**0.0000**	**146.4785**

3.8 Improvements - Storm Drains - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	6.2706	6.2706	3.1000e-004	0.0000	6.2771
Total											**0.0000**	**6.2706**	**6.2706**	**3.1000e-004**	**0.0000**	**6.2771**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	145.4902	145.4902	0.0471	0.0000	146.4783
Total											**0.0000**	**145.4902**	**145.4902**	**0.0471**	**0.0000**	**146.4783**

3.8 Improvements - Storm Drains - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	6.2706	6.2706	3.1000e-004	0.0000	6.2771
Total											**0.0000**	**6.2706**	**6.2706**	**3.1000e-004**	**0.0000**	**6.2771**

3.9 Architectural Coating 1 - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.7500e-003	0.0000	25.5693
Total											**0.0000**	**25.5325**	**25.5325**	**1.7500e-003**	**0.0000**	**25.5693**

3.9 Architectural Coating 1 - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	318.3555	318.3555	0.0155	0.0000	318.6815
Total											**0.0000**	**318.3555**	**318.3555**	**0.0155**	**0.0000**	**318.6815**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.7500e-003	0.0000	25.5693
Total											**0.0000**	**25.5325**	**25.5325**	**1.7500e-003**	**0.0000**	**25.5693**

3.9 Architectural Coating 1 - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	318.3555	318.3555	0.0155	0.0000	318.6815
Total											**0.0000**	**318.3555**	**318.3555**	**0.0155**	**0.0000**	**318.6815**

3.10 Improvements - Water - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.8339	225.8339	0.0730	0.0000	227.3677
Total											**0.0000**	**225.8339**	**225.8339**	**0.0730**	**0.0000**	**227.3677**

3.10 Improvements - Water - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	6.0295	6.0295	2.9000e-004	0.0000	6.0356
Total											**0.0000**	**6.0295**	**6.0295**	**2.9000e-004**	**0.0000**	**6.0356**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.8336	225.8336	0.0730	0.0000	227.3674
Total											**0.0000**	**225.8336**	**225.8336**	**0.0730**	**0.0000**	**227.3674**

3.10 Improvements - Water - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	6.0295	6.0295	2.9000e-004	0.0000	6.0356
Total											**0.0000**	**6.0295**	**6.0295**	**2.9000e-004**	**0.0000**	**6.0356**

3.11 Improvements - Streets - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	37.7534	37.7534	0.0122	0.0000	38.0099
Total											**0.0000**	**37.7534**	**37.7534**	**0.0122**	**0.0000**	**38.0099**

3.11 Improvements - Streets - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.2059	1.2059	6.0000e-005	0.0000	1.2071
Total											**0.0000**	**1.2059**	**1.2059**	**6.0000e-005**	**0.0000**	**1.2071**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	37.7534	37.7534	0.0122	0.0000	38.0098
Total											**0.0000**	**37.7534**	**37.7534**	**0.0122**	**0.0000**	**38.0098**

3.11 Improvements - Streets - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	1.2059	1.2059	6.0000e-005	0.0000	1.2071
Total											**0.0000**	**1.2059**	**1.2059**	**6.0000e-005**	**0.0000**	**1.2071**

3.12 Building Construction 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	224.9960	224.9960	0.0538	0.0000	226.1263
Total											**0.0000**	**224.9960**	**224.9960**	**0.0538**	**0.0000**	**226.1263**

3.12 Building Construction 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,134.0387	1,134.0387	8.4700e-003	0.0000	1,134.2166
Worker											0.0000	1,523.8193	1,523.8193	0.0723	0.0000	1,525.3383
Total											**0.0000**	**2,657.8579**	**2,657.8579**	**0.0808**	**0.0000**	**2,659.5549**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	224.9957	224.9957	0.0538	0.0000	226.1260
Total											**0.0000**	**224.9957**	**224.9957**	**0.0538**	**0.0000**	**226.1260**

3.12 Building Construction 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,134.0387	1,134.0387	8.4700e-003	0.0000	1,134.2166
Worker											0.0000	1,523.8193	1,523.8193	0.0723	0.0000	1,525.3383
Total											**0.0000**	**2,657.8579**	**2,657.8579**	**0.0808**	**0.0000**	**2,659.5549**

3.13 Architectural Coating 2 - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.6600e-003	0.0000	25.5675
Total											**0.0000**	**25.5325**	**25.5325**	**1.6600e-003**	**0.0000**	**25.5675**

3.13 Architectural Coating 2 - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	313.0526	313.0526	0.0149	0.0000	313.3647
Total											**0.0000**	**313.0526**	**313.0526**	**0.0149**	**0.0000**	**313.3647**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.6600e-003	0.0000	25.5674
Total											**0.0000**	**25.5325**	**25.5325**	**1.6600e-003**	**0.0000**	**25.5674**

3.13 Architectural Coating 2 - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	313.0526	313.0526	0.0149	0.0000	313.3647
Total											**0.0000**	**313.0526**	**313.0526**	**0.0149**	**0.0000**	**313.3647**

3.14 Building Construction 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.0735	225.0735	0.0535	0.0000	226.1962
Total											**0.0000**	**225.0735**	**225.0735**	**0.0535**	**0.0000**	**226.1962**

3.14 Building Construction 3 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,128.6382	1,128.6382	7.5900e-003	0.0000	1,128.7977
Worker											0.0000	1,500.1067	1,500.1067	0.0695	0.0000	1,501.5654
Total											**0.0000**	**2,628.7450**	**2,628.7450**	**0.0771**	**0.0000**	**2,630.3630**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.0732	225.0732	0.0535	0.0000	226.1959
Total											**0.0000**	**225.0732**	**225.0732**	**0.0535**	**0.0000**	**226.1959**

3.14 Building Construction 3 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,128.638 2	1,128.638 2	7.5900e-003	0.0000	1,128.797 7
Worker											0.0000	1,500.106 7	1,500.106 7	0.0695	0.0000	1,501.565 4
Total											**0.0000**	**2,628.745 0**	**2,628.745 0**	**0.0771**	**0.0000**	**2,630.363 0**

3.15 Architectural Coating 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.5300e-003	0.0000	25.5646
Total											**0.0000**	**25.5325**	**25.5325**	**1.5300e-003**	**0.0000**	**25.5646**

3.15 Architectural Coating 3 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	308.1811	308.1811	0.0143	0.0000	308.4808
Total											**0.0000**	**308.1811**	**308.1811**	**0.0143**	**0.0000**	**308.4808**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.5300e-003	0.0000	25.5646
Total											**0.0000**	**25.5325**	**25.5325**	**1.5300e-003**	**0.0000**	**25.5646**

3.15 Architectural Coating 3 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	308.1811	308.1811	0.0143	0.0000	308.4808
Total											**0.0000**	**308.1811**	**308.1811**	**0.0143**	**0.0000**	**308.4808**

3.16 Building Construction 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1168	225.1168	0.0532	0.0000	226.2330
Total											**0.0000**	**225.1168**	**225.1168**	**0.0532**	**0.0000**	**226.2330**

3.16 Building Construction 4 - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.1467	1,131.1467	7.6900e-003	0.0000	1,131.3081
Worker											0.0000	1,489.0574	1,489.0574	0.0677	0.0000	1,490.4783
Total											**0.0000**	**2,620.2041**	**2,620.2041**	**0.0754**	**0.0000**	**2,621.7864**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1165	225.1165	0.0532	0.0000	226.2327
Total											**0.0000**	**225.1165**	**225.1165**	**0.0532**	**0.0000**	**226.2327**

3.16 Building Construction 4 - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.1467	1,131.1467	7.6900e-003	0.0000	1,131.3081
Worker											0.0000	1,489.0574	1,489.0574	0.0677	0.0000	1,490.4783
Total											**0.0000**	**2,620.2041**	**2,620.2041**	**0.0754**	**0.0000**	**2,621.7864**

3.17 Architectural Coating 4 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.4400e-003	0.0000	25.5627
Total											**0.0000**	**25.5325**	**25.5325**	**1.4400e-003**	**0.0000**	**25.5627**

3.17 Architectural Coating 4 - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	305.9112	305.9112	0.0139	0.0000	306.2031
Total											**0.0000**	**305.9112**	**305.9112**	**0.0139**	**0.0000**	**306.2031**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.4400e-003	0.0000	25.5627
Total											**0.0000**	**25.5325**	**25.5325**	**1.4400e-003**	**0.0000**	**25.5627**

3.17 Architectural Coating 4 - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	305.9112	305.9112	0.0139	0.0000	306.2031
Total											**0.0000**	**305.9112**	**305.9112**	**0.0139**	**0.0000**	**306.2031**

3.18 Building Construction 5 - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1853	225.1853	0.0529	0.0000	226.2952
Total											**0.0000**	**225.1853**	**225.1853**	**0.0529**	**0.0000**	**226.2952**

3.18 Building Construction 5 - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.2032	1,131.2032	7.7200e-003	0.0000	1,131.3653
Worker											0.0000	1,469.7737	1,469.7737	0.0655	0.0000	1,471.1492
Total											**0.0000**	**2,600.9769**	**2,600.9769**	**0.0732**	**0.0000**	**2,602.5145**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1851	225.1851	0.0529	0.0000	226.2949
Total											**0.0000**	**225.1851**	**225.1851**	**0.0529**	**0.0000**	**226.2949**

3.18 Building Construction 5 - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.2032	1,131.2032	7.7200e-003	0.0000	1,131.3653
Worker											0.0000	1,469.7737	1,469.7737	0.0655	0.0000	1,471.1492
Total											**0.0000**	**2,600.9769**	**2,600.9769**	**0.0732**	**0.0000**	**2,602.5145**

3.19 Architectural Coating 5 - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.19 Architectural Coating 5 - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	301.9495	301.9495	0.0135	0.0000	302.2321
Total											**0.0000**	**301.9495**	**301.9495**	**0.0135**	**0.0000**	**302.2321**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.19 Architectural Coating 5 - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	301.9495	301.9495	0.0135	0.0000	302.2321
Total											**0.0000**	**301.9495**	**301.9495**	**0.0135**	**0.0000**	**302.2321**

3.20 Building Construction 6 - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1853	225.1853	0.0529	0.0000	226.2952
Total											**0.0000**	**225.1853**	**225.1853**	**0.0529**	**0.0000**	**226.2952**

3.20 Building Construction 6 - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,130.967 9	1,130.967 9	7.4700e-003	0.0000	1,131.124 8
Worker											0.0000	1,452.842 6	1,452.842 6	0.0636	0.0000	1,454.177 8
Total											**0.0000**	**2,583.810 5**	**2,583.810 5**	**0.0711**	**0.0000**	**2,585.302 6**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1851	225.1851	0.0529	0.0000	226.2949
Total											**0.0000**	**225.1851**	**225.1851**	**0.0529**	**0.0000**	**226.2949**

3.20 Building Construction 6 - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,130.967 9	1,130.967 9	7.4700e-003	0.0000	1,131.124 8
Worker											0.0000	1,452.842 6	1,452.842 6	0.0636	0.0000	1,454.177 8
Total											**0.0000**	**2,583.810 5**	**2,583.810 5**	**0.0711**	**0.0000**	**2,585.302 6**

3.21 Architectural Coating 6 - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.21 Architectural Coating 6 - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	298.4712	298.4712	0.0131	0.0000	298.7455
Total											**0.0000**	**298.4712**	**298.4712**	**0.0131**	**0.0000**	**298.7455**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.21 Architectural Coating 6 - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	298.4712	298.4712	0.0131	0.0000	298.7455
Total											**0.0000**	**298.4712**	**298.4712**	**0.0131**	**0.0000**	**298.7455**

3.22 Building Construction 7 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1853	225.1853	0.0529	0.0000	226.2952
Total											**0.0000**	**225.1853**	**225.1853**	**0.0529**	**0.0000**	**226.2952**

3.22 Building Construction 7 - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.0526	1,131.0526	7.4900e-003	0.0000	1,131.2099
Worker											0.0000	1,438.0021	1,438.0021	0.0619	0.0000	1,439.3011
Total											**0.0000**	**2,569.0547**	**2,569.0547**	**0.0694**	**0.0000**	**2,570.5110**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1851	225.1851	0.0529	0.0000	226.2949
Total											**0.0000**	**225.1851**	**225.1851**	**0.0529**	**0.0000**	**226.2949**

3.22 Building Construction 7 - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.0526	1,131.0526	7.4900e-003	0.0000	1,131.2099
Worker											0.0000	1,438.0021	1,438.0021	0.0619	0.0000	1,439.3011
Total											**0.0000**	**2,569.0547**	**2,569.0547**	**0.0694**	**0.0000**	**2,570.5110**

3.23 Architectural Coating 7 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.23 Architectural Coating 7 - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	295.4224	295.4224	0.0127	0.0000	295.6893
Total											**0.0000**	**295.4224**	**295.4224**	**0.0127**	**0.0000**	**295.6893**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.23 Architectural Coating 7 - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	295.4224	295.4224	0.0127	0.0000	295.6893
Total											**0.0000**	**295.4224**	**295.4224**	**0.0127**	**0.0000**	**295.6893**

3.24 Building Construction 8 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1853	225.1853	0.0529	0.0000	226.2952
Total											**0.0000**	**225.1853**	**225.1853**	**0.0529**	**0.0000**	**226.2952**

3.24 Building Construction 8 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.0674	1,131.0674	7.4500e-003	0.0000	1,131.2239
Worker											0.0000	1,425.1920	1,425.1920	0.0603	0.0000	1,426.4589
Total											**0.0000**	**2,556.2594**	**2,556.2594**	**0.0678**	**0.0000**	**2,557.6828**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1851	225.1851	0.0529	0.0000	226.2949
Total											**0.0000**	**225.1851**	**225.1851**	**0.0529**	**0.0000**	**226.2949**

3.24 Building Construction 8 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.0674	1,131.0674	7.4500e-003	0.0000	1,131.2239
Worker											0.0000	1,425.1920	1,425.1920	0.0603	0.0000	1,426.4589
Total											**0.0000**	**2,556.2594**	**2,556.2594**	**0.0678**	**0.0000**	**2,557.6828**

3.25 Architectural Coating 8 - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.25 Architectural Coating 8 - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	292.7907	292.7907	0.0124	0.0000	293.0510
Total											**0.0000**	**292.7907**	**292.7907**	**0.0124**	**0.0000**	**293.0510**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.25 Architectural Coating 8 - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	292.7907	292.7907	0.0124	0.0000	293.0510
Total											**0.0000**	**292.7907**	**292.7907**	**0.0124**	**0.0000**	**293.0510**

3.26 Building Construction 9 - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1853	225.1853	0.0529	0.0000	226.2952
Total											**0.0000**	**225.1853**	**225.1853**	**0.0529**	**0.0000**	**226.2952**

3.26 Building Construction 9 - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.1083	1,131.1083	7.4600e-003	0.0000	1,131.2650
Worker											0.0000	1,414.0339	1,414.0339	0.0588	0.0000	1,415.2691
Total											**0.0000**	**2,545.1422**	**2,545.1422**	**0.0663**	**0.0000**	**2,546.5341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	225.1851	225.1851	0.0529	0.0000	226.2949
Total											**0.0000**	**225.1851**	**225.1851**	**0.0529**	**0.0000**	**226.2949**

3.26 Building Construction 9 - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,131.1083	1,131.1083	7.4600e-003	0.0000	1,131.2650
Worker											0.0000	1,414.0339	1,414.0339	0.0588	0.0000	1,415.2691
Total											**0.0000**	**2,545.1422**	**2,545.1422**	**0.0663**	**0.0000**	**2,546.5341**

3.27 Architectural Coating 9 - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.27 Architectural Coating 9 - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	290.4984	290.4984	0.0121	0.0000	290.7521
Total											**0.0000**	**290.4984**	**290.4984**	**0.0121**	**0.0000**	**290.7521**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.5325	25.5325	1.3900e-003	0.0000	25.5618
Total											**0.0000**	**25.5325**	**25.5325**	**1.3900e-003**	**0.0000**	**25.5618**

3.27 Architectural Coating 9 - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	290.4984	290.4984	0.0121	0.0000	290.7521
Total											**0.0000**	**290.4984**	**290.4984**	**0.0121**	**0.0000**	**290.7521**

3.28 Building Construction 10 - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	263.0159	263.0159	0.0106	0.0000	263.2376
Total											**0.0000**	**263.0159**	**263.0159**	**0.0106**	**0.0000**	**263.2376**

3.28 Building Construction 10 - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,165.9240	1,165.9240	7.7000e-003	0.0000	1,166.0857
Worker											0.0000	1,447.6153	1,447.6153	0.0592	0.0000	1,448.8576
Total											**0.0000**	**2,613.5393**	**2,613.5393**	**0.0669**	**0.0000**	**2,614.9433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road											0.0000	263.0156	263.0156	0.0106	0.0000	263.2373
Total											**0.0000**	**263.0156**	**263.0156**	**0.0106**	**0.0000**	**263.2373**

3.28 Building Construction 10 - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	1,165.924 0	1,165.924 0	7.7000e-003	0.0000	1,166.085 7
Worker											0.0000	1,447.615 3	1,447.615 3	0.0592	0.0000	1,448.857 6
Total											**0.0000**	**2,613.539 3**	**2,613.539 3**	**0.0669**	**0.0000**	**2,614.943 3**

3.29 Architectural Coating 10 - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.6602	25.6602	1.0400e-003	0.0000	25.6820
Total											**0.0000**	**25.6602**	**25.6602**	**1.0400e-003**	**0.0000**	**25.6820**

3.29 Architectural Coating 10 - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	289.9624	289.9624	0.0119	0.0000	290.2112
Total											**0.0000**	**289.9624**	**289.9624**	**0.0119**	**0.0000**	**290.2112**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road											0.0000	25.6602	25.6602	1.0400e-003	0.0000	25.6820
Total											**0.0000**	**25.6602**	**25.6602**	**1.0400e-003**	**0.0000**	**25.6820**

3.29 Architectural Coating 10 - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker											0.0000	289.9624	289.9624	0.0119	0.0000	290.2112
Total											**0.0000**	**289.9624**	**289.9624**	**0.0119**	**0.0000**	**290.2112**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	0.00	0.00	0.00		
Office Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	18.50	10.10	7.90	59.00	28.00	13.00	79	19	2
Office Park	18.50	10.10	7.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.508453	0.058534	0.182003	0.128323	0.043028	0.007073	0.018375	0.041612	0.002788	0.003272	0.003888	0.000508	0.002143

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	tons/yr										MT/yr					
Electricity Mitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated											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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	0											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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Office Park	0											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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Unmitigated											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Total											**0.0000**	**0.0844**	**0.0844**	**2.2000e-004**	**0.0000**	**0.0890**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Total											**0.0000**	**0.0844**	**0.0844**	**2.2000e-004**	**0.0000**	**0.0890**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Office Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Office Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Vegetation

ES 2030 Unmitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	62.50	1000sqft	4.50	62,500.00	0
Elementary School	750.00	Student	10.00	60,000.00	0
Health Club	6.70	1000sqft	3.20	6,700.00	0
Hotel	286.00	Room	14.30	200,000.00	0
Condo/Townhouse	1,297.00	Dwelling Unit	45.10	1,297,000.00	4086
Single Family Housing	428.00	Dwelling Unit	68.80	770,400.00	1348
Regional Shopping Center	187.50	1000sqft	13.40	187,500.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	374.54	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes 50% RPS.

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Construction emissions calculated separately.

Off-road Equipment - Construction emissions calculated separately.

Trips and VMT - Construction emissions calculated separately.

On-road Fugitive Dust - Construction emissions calculated separately.

Demolition - Construction emissions calculated separately.

Grading - Construction emissions calculated separately.

Architectural Coating - Construction emissions calculated separately.

Vehicle Trips - Trip rates and lengths are based on trip generation summary. Trips are assumed to be 100% primary trips.

Vechicle Emission Factors - Modified EMFAC2014. Includes reduction from Pavley/ACC. Excludes LCFS.

Vechicle Emission Factors -

Vechicle Emission Factors -

Woodstoves - Assumed that any decorative fireplaces are captured in the ConSol residential building energy analysis.

Energy Use - Updated to Title 24 - 2016 based on ConSol building analysis.

Water And Wastewater - Water use updated according to water study.

Solid Waste - Solid waste generation updated according to data for Santa Clarita, CA.

Land Use Change - Vegetation based on project information.

Sequestration - Number of trees based on project information.

Waste Mitigation - 75% diverted.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,001.10	308.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.49	0.00
tblEnergyUse	LightingElect	7.04	0.00

tblEnergyUse	LightingElect	1,608.84	767.00
tblEnergyUse	NT24E	3,126.97	2,855.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	2.89	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	4,244.00
tblEnergyUse	NT24NG	2,951.00	1,200.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	4.06	0.00
tblEnergyUse	NT24NG	0.49	0.00
tblEnergyUse	NT24NG	5,856.92	1,500.00
tblEnergyUse	T24E	269.81	499.00
tblEnergyUse	T24E	2.13	6.18
tblEnergyUse	T24E	5.62	13.41
tblEnergyUse	T24E	2.75	9.46
tblEnergyUse	T24E	3.12	7.84
tblEnergyUse	T24E	4.90	11.89
tblEnergyUse	T24E	596.10	879.00
tblEnergyUse	T24NG	11,455.03	8,700.00
tblEnergyUse	T24NG	9.81	9.39
tblEnergyUse	T24NG	10.54	9.43
tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	20.96	21.58
tblEnergyUse	T24NG	1.21	1.32

tblEnergyUse	T24NG	23,944.02	20,500.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	1,102.45	0.00
tblFireplaces	NumberGas	363.80	0.00
tblFireplaces	NumberNoFireplace	129.70	1,297.00
tblFireplaces	NumberNoFireplace	42.80	428.00
tblFireplaces	NumberWood	64.85	0.00
tblFireplaces	NumberWood	21.40	0.00
tblLandUse	LandUseSquareFeet	62,702.53	60,000.00
tblLandUse	LandUseSquareFeet	415,272.00	200,000.00
tblLandUse	LotAcreage	1.43	4.50
tblLandUse	LotAcreage	1.44	10.00
tblLandUse	LotAcreage	0.15	3.20
tblLandUse	LotAcreage	9.53	14.30
tblLandUse	LotAcreage	81.06	45.10
tblLandUse	LotAcreage	138.96	68.80
tblLandUse	LotAcreage	4.30	13.40
tblLandUse	Population	3,709.00	4,086.00
tblLandUse	Population	1,224.00	1,348.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	374.54
tblProjectCharacteristics	OperationalYear	2014	2030
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	2,500.00
tblSolidWaste	SolidWasteGenerationRate	596.62	5,666.66
tblSolidWaste	SolidWasteGenerationRate	136.88	140.40
tblSolidWaste	SolidWasteGenerationRate	58.13	702.00
tblSolidWaste	SolidWasteGenerationRate	38.19	13.21

tblSolidWaste	SolidWasteGenerationRate	156.59	938.20
tblSolidWaste	SolidWasteGenerationRate	196.88	2,106.51
tblSolidWaste	SolidWasteGenerationRate	552.68	1,869.95
tblVehicleEF	HHD	9.3670e-003	0.10
tblVehicleEF	HHD	1.43	1.12
tblVehicleEF	HHD	1,534.62	1,533.16
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tblVehicleEF	HHD	0.06	0.06
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tblVehicleEF	HHD	0.27	3.6101e-004
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tblVehicleEF	HHD	0.27	3.6101e-004
tblVehicleEF	LDA	9.1840e-003	2.7511e-003
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tblVehicleEF	LDA	0.92	0.60
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tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	0.06	0.03

tblVehicleEF	LDA	0.04	0.04
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tblVehicleEF	LDT1	281.37	271.34
tblVehicleEF	LDT1	56.07	55.15

tblVehicleEF	LDT1	0.06	0.04
tblVehicleEF	LDT1	0.10	0.07
tblVehicleEF	LDT1	0.11	0.07
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.9120e-003	2.1875e-003
tblVehicleEF	LDT1	4.8330e-003	2.3432e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
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tblVehicleEF	LDT1	4.4840e-003	2.1545e-003
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tblVehicleEF	LDT1	0.08	0.06
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tblVehicleEF	LDT1	0.04	0.03
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tblVehicleEF	LDT2	0.04	0.04
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tblVehicleEF	LDT2	0.06	0.03
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tblVehicleEF	LDT2	0.36	0.05
tblVehicleEF	LDT2	0.08	0.04
tblVehicleEF	LDT2	5.0880e-003	2.9869e-003
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tblVehicleEF	LDT2	0.11	0.06
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.03	0.01
tblVehicleEF	LDT2	0.36	0.05
tblVehicleEF	LDT2	0.08	0.04

tblVehicleEF	LHD1	1.2860e-003	3.6736e-003
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tblVehicleEF	LHD1	0.01	9.1700e-003
tblVehicleEF	LHD1	0.19	0.13
tblVehicleEF	LHD1	0.41	0.33
tblVehicleEF	LHD1	3.00	1.51
tblVehicleEF	LHD1	7.51	8.95
tblVehicleEF	LHD1	551.06	552.25
tblVehicleEF	LHD1	45.62	25.26
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.03	0.06
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tblVehicleEF	LHD1	4.1400e-004	5.6174e-004
tblVehicleEF	LHD1	1.9860e-003	1.8077e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	1.5210e-003	1.2067e-003
tblVehicleEF	LHD1	0.03	0.04

tblVehicleEF	LHD1	0.33	0.22
tblVehicleEF	LHD1	0.25	0.12
tblVehicleEF	LHD1	8.6000e-005	8.8674e-005
tblVehicleEF	LHD1	6.0760e-003	5.3893e-003
tblVehicleEF	LHD1	5.6100e-004	2.7997e-004
tblVehicleEF	LHD1	1.9860e-003	1.8077e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	1.5210e-003	1.2067e-003
tblVehicleEF	LHD1	0.04	0.05
tblVehicleEF	LHD1	0.33	0.22
tblVehicleEF	LHD1	0.26	0.14
tblVehicleEF	LHD2	1.0510e-003	2.6621e-003
tblVehicleEF	LHD2	4.7010e-003	2.1632e-003
tblVehicleEF	LHD2	8.1870e-003	3.4330e-003
tblVehicleEF	LHD2	0.16	0.12
tblVehicleEF	LHD2	0.36	0.19
tblVehicleEF	LHD2	1.92	0.90
tblVehicleEF	LHD2	8.23	13.47
tblVehicleEF	LHD2	526.21	582.26
tblVehicleEF	LHD2	33.37	22.83
tblVehicleEF	LHD2	7.0730e-003	6.4276e-003
tblVehicleEF	LHD2	0.08	0.07
tblVehicleEF	LHD2	0.63	0.16
tblVehicleEF	LHD2	0.77	0.28
tblVehicleEF	LHD2	8.6000e-004	1.0093e-003
tblVehicleEF	LHD2	0.06	0.09
tblVehicleEF	LHD2	9.7000e-003	0.01

tblVehicleEF	LHD2	8.1050e-003	6.4462e-003
tblVehicleEF	LHD2	2.1400e-004	3.8123e-004
tblVehicleEF	LHD2	7.9100e-004	9.6567e-004
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	2.4250e-003	2.6996e-003
tblVehicleEF	LHD2	7.4580e-003	6.1540e-003
tblVehicleEF	LHD2	1.9900e-004	3.5053e-004
tblVehicleEF	LHD2	1.1270e-003	6.1692e-004
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	9.0900e-004	4.6027e-004
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.18	0.04
tblVehicleEF	LHD2	0.15	0.05
tblVehicleEF	LHD2	9.2000e-005	1.3132e-004
tblVehicleEF	LHD2	5.7420e-003	5.6600e-003
tblVehicleEF	LHD2	4.0500e-004	2.4348e-004
tblVehicleEF	LHD2	1.1270e-003	6.1692e-004
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	9.0900e-004	4.6027e-004
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.18	0.04
tblVehicleEF	LHD2	0.16	0.05
tblVehicleEF	MCY	0.00	0.56
tblVehicleEF	MCY	0.00	0.14
tblVehicleEF	MCY	18.00	17.95
tblVehicleEF	MCY	10.16	9.79

tblVehicleEF	MCY	144.16	192.36
tblVehicleEF	MCY	36.52	42.19
tblVehicleEF	MCY	3.8880e-003	5.2679e-003
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	0.30	0.31
tblVehicleEF	MCY	0.04	0.01
tblVehicleEF	MCY	8.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.2600e-004	2.6958e-003
tblVehicleEF	MCY	6.7800e-004	3.3482e-003
tblVehicleEF	MCY	0.02	5.0400e-003
tblVehicleEF	MCY	2.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.9600e-004	2.5136e-003
tblVehicleEF	MCY	5.9200e-004	3.1291e-003
tblVehicleEF	MCY	0.90	1.05
tblVehicleEF	MCY	0.38	0.57
tblVehicleEF	MCY	0.52	0.62
tblVehicleEF	MCY	2.29	2.56
tblVehicleEF	MCY	1.11	0.47
tblVehicleEF	MCY	2.02	1.97
tblVehicleEF	MCY	1.9560e-003	2.2964e-003
tblVehicleEF	MCY	6.2900e-004	6.3970e-004
tblVehicleEF	MCY	0.90	1.05
tblVehicleEF	MCY	0.38	0.57
tblVehicleEF	MCY	0.52	0.62
tblVehicleEF	MCY	2.52	3.22
tblVehicleEF	MCY	1.11	0.47
tblVehicleEF	MCY	2.17	2.15
tblVehicleEF	MDV	0.02	6.3254e-003

tblVehicleEF	MDV	9.3950e-003	5.4664e-003
tblVehicleEF	MDV	1.16	0.75
tblVehicleEF	MDV	2.17	1.20
tblVehicleEF	MDV	468.58	401.69
tblVehicleEF	MDV	93.95	80.08
tblVehicleEF	MDV	0.13	0.12
tblVehicleEF	MDV	0.13	0.07
tblVehicleEF	MDV	0.18	0.09
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	2.4270e-003	1.7875e-003
tblVehicleEF	MDV	4.4780e-003	2.0419e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	2.2520e-003	1.6458e-003
tblVehicleEF	MDV	4.1550e-003	1.8774e-003
tblVehicleEF	MDV	0.09	0.05
tblVehicleEF	MDV	0.19	0.11
tblVehicleEF	MDV	0.10	0.06
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.55	0.07
tblVehicleEF	MDV	0.17	0.07
tblVehicleEF	MDV	6.5100e-003	4.0178e-003
tblVehicleEF	MDV	1.3230e-003	8.2060e-004
tblVehicleEF	MDV	0.09	0.05
tblVehicleEF	MDV	0.19	0.11
tblVehicleEF	MDV	0.10	0.06
tblVehicleEF	MDV	0.04	0.02

tblVehicleEF	MDV	0.55	0.07
tblVehicleEF	MDV	0.18	0.08
tblVehicleEF	MH	0.00	6.0056e-003
tblVehicleEF	MH	0.00	0.02
tblVehicleEF	MH	0.25	0.34
tblVehicleEF	MH	4.15	3.45
tblVehicleEF	MH	613.93	1,105.54
tblVehicleEF	MH	28.95	57.38
tblVehicleEF	MH	2.1430e-003	8.1443e-004
tblVehicleEF	MH	0.61	0.66
tblVehicleEF	MH	0.54	0.57
tblVehicleEF	MH	0.05	0.13
tblVehicleEF	MH	8.4550e-003	0.01
tblVehicleEF	MH	8.4230e-003	8.9218e-003
tblVehicleEF	MH	2.2300e-004	8.3704e-004
tblVehicleEF	MH	0.02	0.06
tblVehicleEF	MH	2.1140e-003	3.2140e-003
tblVehicleEF	MH	7.7500e-003	8.5003e-003
tblVehicleEF	MH	2.0700e-004	7.6963e-004
tblVehicleEF	MH	0.43	0.45
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.73	8.1089e-003
tblVehicleEF	MH	0.22	0.20
tblVehicleEF	MH	6.7550e-003	0.01
tblVehicleEF	MH	3.9300e-004	6.3353e-004
tblVehicleEF	MH	0.43	0.45

tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.73	8.1089e-003
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MHD	3.2390e-003	2.2769e-003
tblVehicleEF	MHD	0.38	0.21
tblVehicleEF	MHD	919.01	1,122.44
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.83	0.69
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	2.8359e-003
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.8000e-003	3.0000e-003
tblVehicleEF	MHD	0.03	2.7081e-003
tblVehicleEF	MHD	0.07	0.03
tblVehicleEF	MHD	0.33	0.01
tblVehicleEF	MHD	9.7980e-003	0.01
tblVehicleEF	MHD	0.09	0.04
tblVehicleEF	MHD	0.33	0.01
tblVehicleEF	OBUS	2.9950e-003	3.6290e-003
tblVehicleEF	OBUS	0.58	0.29
tblVehicleEF	OBUS	1,052.70	1,230.26
tblVehicleEF	OBUS	2.7880e-003	2.6426e-003
tblVehicleEF	OBUS	1.10	0.65
tblVehicleEF	OBUS	0.10	0.13
tblVehicleEF	OBUS	0.01	0.01

tblVehicleEF	OBUS	0.04	2.8401e-003
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	2.6860e-003	3.0000e-003
tblVehicleEF	OBUS	0.04	2.6994e-003
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.31	0.04
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.12	0.04
tblVehicleEF	OBUS	0.31	0.04
tblVehicleEF	SBUS	6.5080e-003	0.81
tblVehicleEF	SBUS	8.3150e-003	5.5521e-003
tblVehicleEF	SBUS	0.00	0.05
tblVehicleEF	SBUS	1.65	17.34
tblVehicleEF	SBUS	1.36	0.36
tblVehicleEF	SBUS	16.08	12.17
tblVehicleEF	SBUS	570.74	1,829.41
tblVehicleEF	SBUS	1,031.10	1,015.81
tblVehicleEF	SBUS	115.30	120.98
tblVehicleEF	SBUS	5.0800e-004	6.9949e-004
tblVehicleEF	SBUS	5.36	7.56
tblVehicleEF	SBUS	4.62	1.72
tblVehicleEF	SBUS	1.49	7.91
tblVehicleEF	SBUS	8.6910e-003	3.8181e-003
tblVehicleEF	SBUS	0.56	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	8.7676e-003
tblVehicleEF	SBUS	1.5380e-003	2.1349e-003
tblVehicleEF	SBUS	7.9950e-003	3.6529e-003

tblVehicleEF	SBUS	0.24	0.32
tblVehicleEF	SBUS	2.7400e-003	2.5999e-003
tblVehicleEF	SBUS	0.04	8.3686e-003
tblVehicleEF	SBUS	1.4270e-003	1.9630e-003
tblVehicleEF	SBUS	0.02	7.7031e-003
tblVehicleEF	SBUS	0.18	0.06
tblVehicleEF	SBUS	0.14	2.06
tblVehicleEF	SBUS	9.3890e-003	4.5899e-003
tblVehicleEF	SBUS	0.23	0.06
tblVehicleEF	SBUS	1.74	0.02
tblVehicleEF	SBUS	1.01	0.67
tblVehicleEF	SBUS	6.0500e-003	0.02
tblVehicleEF	SBUS	0.01	9.8074e-003
tblVehicleEF	SBUS	1.5630e-003	1.4207e-003
tblVehicleEF	SBUS	0.02	7.7031e-003
tblVehicleEF	SBUS	0.18	0.06
tblVehicleEF	SBUS	0.16	2.99
tblVehicleEF	SBUS	9.3890e-003	4.5899e-003
tblVehicleEF	SBUS	0.26	0.07
tblVehicleEF	SBUS	1.74	0.02
tblVehicleEF	SBUS	1.08	0.73
tblVehicleEF	UBUS	0.00	1.62
tblVehicleEF	UBUS	0.00	0.05
tblVehicleEF	UBUS	2.48	6.83
tblVehicleEF	UBUS	5.30	8.08
tblVehicleEF	UBUS	1,918.79	1,802.66
tblVehicleEF	UBUS	19.75	125.59
tblVehicleEF	UBUS	3.2720e-003	1.7308e-003

tblVehicleEF	UBUS	8.07	3.98
tblVehicleEF	UBUS	0.79	1.27
tblVehicleEF	UBUS	0.72	0.54
tblVehicleEF	UBUS	8.0000e-003	0.01
tblVehicleEF	UBUS	0.15	0.05
tblVehicleEF	UBUS	2.1700e-004	1.3647e-003
tblVehicleEF	UBUS	0.31	0.23
tblVehicleEF	UBUS	2.0000e-003	3.0000e-003
tblVehicleEF	UBUS	0.14	0.04
tblVehicleEF	UBUS	2.0100e-004	1.2548e-003
tblVehicleEF	UBUS	2.7160e-003	3.5939e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.6680e-003	2.5575e-003
tblVehicleEF	UBUS	0.41	0.31
tblVehicleEF	UBUS	0.46	0.02
tblVehicleEF	UBUS	0.43	0.70
tblVehicleEF	UBUS	0.02	8.4946e-003
tblVehicleEF	UBUS	3.1600e-004	1.4036e-003
tblVehicleEF	UBUS	2.7160e-003	3.5939e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.6680e-003	2.5575e-003
tblVehicleEF	UBUS	0.46	1.97
tblVehicleEF	UBUS	0.46	0.02
tblVehicleEF	UBUS	0.45	0.77
tblVehicleTrips	CC_TL	10.10	14.40
tblVehicleTrips	CC_TL	10.10	12.00
tblVehicleTrips	CC_TL	10.10	12.20
tblVehicleTrips	CC_TL	10.10	11.80

tblVehicleTrips	CC_TL	10.10	11.60
tblVehicleTrips	CNW_TL	7.90	14.40
tblVehicleTrips	CNW_TL	7.90	12.00
tblVehicleTrips	CNW_TL	7.90	12.20
tblVehicleTrips	CNW_TL	7.90	11.80
tblVehicleTrips	CNW_TL	7.90	11.60
tblVehicleTrips	CW_TL	18.50	14.40
tblVehicleTrips	CW_TL	18.50	12.00
tblVehicleTrips	CW_TL	18.50	12.20
tblVehicleTrips	CW_TL	18.50	11.80
tblVehicleTrips	CW_TL	18.50	11.60
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	DV_TP	38.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	12.90	8.50
tblVehicleTrips	HO_TL	12.90	8.90
tblVehicleTrips	HS_TL	9.60	8.50
tblVehicleTrips	HS_TL	9.60	8.90
tblVehicleTrips	HW_TL	19.80	8.50
tblVehicleTrips	HW_TL	19.80	8.90
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00

tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	PR_TP	58.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	7.16	6.58
tblVehicleTrips	ST_TR	2.37	2.00
tblVehicleTrips	ST_TR	20.87	1.52
tblVehicleTrips	ST_TR	8.19	6.43
tblVehicleTrips	ST_TR	49.97	48.92
tblVehicleTrips	ST_TR	10.08	7.96
tblVehicleTrips	SU_TR	6.07	5.58
tblVehicleTrips	SU_TR	0.98	0.83
tblVehicleTrips	SU_TR	26.73	1.94
tblVehicleTrips	SU_TR	5.95	4.67
tblVehicleTrips	SU_TR	25.24	24.71
tblVehicleTrips	SU_TR	8.77	6.92
tblVehicleTrips	WD_TR	6.59	6.05
tblVehicleTrips	WD_TR	1.29	0.88
tblVehicleTrips	WD_TR	11.01	9.27
tblVehicleTrips	WD_TR	32.93	2.39
tblVehicleTrips	WD_TR	8.17	6.41
tblVehicleTrips	WD_TR	42.94	42.04

tblVehicleTrips	WD_TR	9.57	7.55
tblWater	IndoorWaterUseRate	84,504,771.23	162,308,697.00
tblWater	IndoorWaterUseRate	1,818,180.00	3,492,185.00
tblWater	IndoorWaterUseRate	11,108,359.25	21,506,505.00
tblWater	IndoorWaterUseRate	396,259.07	761,096.00
tblWater	IndoorWaterUseRate	7,254,896.22	13,934,515.00
tblWater	IndoorWaterUseRate	13,888,597.78	26,746,954.00
tblWater	IndoorWaterUseRate	27,885,922.97	53,560,556.00
tblWater	OutdoorWaterUseRate	53,274,747.08	244,326,610.00
tblWater	OutdoorWaterUseRate	4,675,320.00	21,441,793.00
tblWater	OutdoorWaterUseRate	6,808,349.22	31,474,031.00
tblWater	OutdoorWaterUseRate	242,868.46	1,113,833.00
tblWater	OutdoorWaterUseRate	806,099.58	3,696,908.00
tblWater	OutdoorWaterUseRate	8,512,366.38	39,143,247.00
tblWater	OutdoorWaterUseRate	17,580,255.78	80,626,172.00
tblWoodstoves	NumberCatalytic	64.85	0.00
tblWoodstoves	NumberCatalytic	21.40	0.00
tblWoodstoves	NumberNoncatalytic	64.85	0.00
tblWoodstoves	NumberNoncatalytic	21.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Energy											0.0000	3,596.0735	3,596.0735	0.1911	0.0611	3,619.0199
Mobile											0.0000	26,726.6672	26,726.6672	1.0393	0.0000	26,748.4928
Waste											2,321.5934	0.0000	2,321.5934	137.2022	0.0000	5,202.8405
Water											89.5641	1,420.6779	1,510.2420	9.3091	0.2400	1,780.1234
Total											**2,411.1575**	**31,772.5092**	**34,183.6667**	**147.7695**	**0.3011**	**37,380.1504**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Energy											0.0000	3,596.0735	3,596.0735	0.1911	0.0611	3,619.0199
Mobile											0.0000	26,726.6672	26,726.6672	1.0393	0.0000	26,748.4928
Waste											580.3984	0.0000	580.3984	34.3006	0.0000	1,300.7101
Water											89.5641	1,420.6779	1,510.2420	9.3074	0.2396	1,779.9805
Total											**669.9625**	**31,772.5092**	**32,442.4716**	**44.8661**	**0.3007**	**33,477.8771**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**72.21**	**0.00**	**5.09**	**69.64**	**0.12**	**10.44**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,770.000 0
Vegetation Land Change	- 2,621.488 0
Total	**-851.4880**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Phase	Trenching	1/1/2016	12/31/2015	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Phase				0.00	19.80	7.90				

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	26,726.6672	26,726.6672	1.0393	0.0000	26,748.4928
Unmitigated											0.0000	26,726.6672	26,726.6672	1.0393	0.0000	26,748.4928

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	7,846.85	8,534.26	7237.26	24,312,550	24,312,550
Elementary School	660.00	0.00	0.00	2,471,040	2,471,040
General Office Building	579.38	125.00	51.88	1,918,020	1,918,020
Health Club	16.01	10.18	13.00	65,500	65,500
Hotel	1,833.26	1,838.98	1335.62	7,572,376	7,572,376
Regional Shopping Center	7,882.50	9,172.50	4633.13	32,101,173	32,101,173
Single Family Housing	3,231.40	3,406.88	2961.76	10,424,866	10,424,866
Total	22,049.40	23,087.80	16,232.64	78,865,526	78,865,526

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	8.50	8.50	8.50	40.20	19.20	40.60	100	0	0
Elementary School	14.40	14.40	14.40	65.00	30.00	5.00	100	0	0
General Office Building	12.00	12.00	12.00	33.00	48.00	19.00	100	0	0
Health Club	12.20	12.20	12.20	16.90	64.10	19.00	100	0	0
Hotel	11.80	11.80	11.80	19.40	61.60	19.00	100	0	0
Regional Shopping Center	11.60	11.60	11.60	16.30	64.70	19.00	100	0	0
Single Family Housing	8.90	8.90	8.90	40.20	19.20	40.60	100	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.539325	0.044357	0.212325	0.116769	0.013824	0.006428	0.021462	0.034355	0.002643	0.001731	0.005268	0.000699	0.000814

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	tons/yr										MT/yr					
NaturalGas Mitigated											0.0000	1,499.612 9	1,499.612 9	0.0287	0.0275	1,508.739 3
NaturalGas Unmitigated											0.0000	1,499.612 9	1,499.612 9	0.0287	0.0275	1,508.739 3
Electricity Mitigated											0.0000	2,096.460 6	2,096.460 6	0.1623	0.0336	2,110.280 7
Electricity Unmitigated											0.0000	2,096.460 6	2,096.460 6	0.1623	0.0336	2,110.280 7

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.28403e +007											0.0000	685.2073	685.2073	0.0131	0.0126	689.3774
Elementary School	563400											0.0000	30.0652	30.0652	5.8000e-004	5.5000e-004	30.2481
General Office Building	589375											0.0000	31.4513	31.4513	6.0000e-004	5.8000e-004	31.6427
Health Club	129109											0.0000	6.8898	6.8898	1.3000e-004	1.3000e-004	6.9317
Hotel	4.316e +006											0.0000	230.3182	230.3182	4.4100e-003	4.2200e-003	231.7199
Regional Shopping Center	247500											0.0000	13.2075	13.2075	2.5000e-004	2.4000e-004	13.2879
Single Family Housing	9.416e +006											0.0000	502.4736	502.4736	9.6300e-003	9.2100e-003	505.5316
Total												**0.0000**	**1,499.6129**	**1,499.6129**	**0.0287**	**0.0275**	**1,508.7393**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.28403e+007											0.0000	685.2073	685.2073	0.0131	0.0126	689.3774
Elementary School	563400											0.0000	30.0652	30.0652	5.8000e-004	5.5000e-004	30.2481
General Office Building	589375											0.0000	31.4513	31.4513	6.0000e-004	5.8000e-004	31.6427
Health Club	129109											0.0000	6.8898	6.8898	1.3000e-004	1.3000e-004	6.9317
Hotel	4.316e+006											0.0000	230.3182	230.3182	4.4100e-003	4.2200e-003	231.7199
Regional Shopping Center	247500											0.0000	13.2075	13.2075	2.5000e-004	2.4000e-004	13.2879
Single Family Housing	9.416e+006											0.0000	502.4736	502.4736	9.6300e-003	9.2100e-003	505.5316
Total												**0.0000**	**1,499.6129**	**1,499.6129**	**0.0287**	**0.0275**	**1,508.7393**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.74961e+006	806.9047	0.0625	0.0129	812.2239
Elementary School	370800	62.9947	4.8800e-003	1.0100e-003	63.4099
General Office Building	838125	142.3878	0.0110	2.2800e-003	143.3264
Health Club	63382	10.7679	8.3000e-004	1.7000e-004	10.8389
Hotel	1.568e+006	266.3852	0.0206	4.2700e-003	268.1412
Regional Shopping Center	2.22938e+006	378.7451	0.0293	6.0700e-003	381.2419
Single Family Housing	2.52092e+006	428.2753	0.0332	6.8600e-003	431.0985
Total		**2,096.4606**	**0.1623**	**0.0336**	**2,110.2807**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.74961e+006	806.9047	0.0625	0.0129	812.2239
Elementary School	370800	62.9947	4.8800e-003	1.0100e-003	63.4099
General Office Building	838125	142.3878	0.0110	2.2800e-003	143.3264
Health Club	63382	10.7679	8.3000e-004	1.7000e-004	10.8389
Hotel	1.568e+006	266.3852	0.0206	4.2700e-003	268.1412
Regional Shopping Center	2.22938e+006	378.7451	0.0293	6.0700e-003	381.2419
Single Family Housing	2.52092e+006	428.2753	0.0332	6.8600e-003	431.0985
Total		**2,096.4606**	**0.1623**	**0.0336**	**2,110.2807**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Unmitigated											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Total											**0.0000**	**29.0907**	**29.0907**	**0.0278**	**0.0000**	**29.6738**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	29.0907	29.0907	0.0278	0.0000	29.6738
Total											**0.0000**	**29.0907**	**29.0907**	**0.0278**	**0.0000**	**29.6738**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	1,510.242 0	9.3091	0.2400	1,780.123 4
Mitigated	1,510.242 0	9.3074	0.2396	1,779.980 5

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	162.309 / 244.327	871.6960	5.3523	0.1380	1,026.8814
Elementary School	3.49219 / 21.4418	49.3036	0.1175	3.4600e-003	52.8439
General Office Building	21.5065 / 31.474	113.8040	0.7091	0.0183	134.3554
Health Club	0.761096 / 1.11383	4.0274	0.0251	6.5000e-004	4.7547
Hotel	13.9345 / 3.69691	42.2233	0.4570	0.0113	55.3313
Regional Shopping Center	26.747 / 39.1432	141.5344	0.8819	0.0227	167.0935
Single Family Housing	53.5606 / 80.6262	287.6533	1.7662	0.0456	338.8632
Total		**1,510.2420**	**9.3091**	**0.2400**	**1,780.1234**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	162.309 / 244.327	871.6960	5.3514	0.1378	1,026.7992
Elementary School	3.49219 / 21.4418	49.3036	0.1175	3.4500e-003	52.8421
General Office Building	21.5065 / 31.474	113.8040	0.7090	0.0182	134.3445
Health Club	0.761096 / 1.11383	4.0274	0.0251	6.5000e-004	4.7543
Hotel	13.9345 / 3.69691	42.2233	0.4569	0.0113	55.3243
Regional Shopping Center	26.747 / 39.1432	141.5344	0.8817	0.0227	167.0800
Single Family Housing	53.5606 / 80.6262	287.6533	1.7659	0.0455	338.8361
Total		**1,510.2420**	**9.3074**	**0.2396**	**1,779.9805**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	580.3984	34.3006	0.0000	1,300.710 1
Unmitigated	2,321.593 4	137.2022	0.0000	5,202.840 5

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	5666.66	1,150.2808	67.9797	0.0000	2,577.8533
Elementary School	140.4	28.4999	1.6843	0.0000	63.8702
General Office Building	702	142.4997	8.4215	0.0000	319.3509
Health Club	13.21	2.6815	0.1585	0.0000	6.0094
Hotel	938.2	190.4461	11.2550	0.0000	426.8020
Regional Shopping Center	2106.51	427.6025	25.2706	0.0000	958.2847
Single Family Housing	1869.95	379.5830	22.4327	0.0000	850.6699
Total		**2,321.5934**	**137.2022**	**0.0000**	**5,202.8405**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	1416.67	287.5702	16.9949	0.0000	644.4633
Elementary School	35.1	7.1250	0.4211	0.0000	15.9676
General Office Building	175.5	35.6249	2.1054	0.0000	79.8377
Health Club	3.3025	0.6704	0.0396	0.0000	1.5024
Hotel	234.55	47.6115	2.8138	0.0000	106.7005
Regional Shopping Center	526.628	106.9006	6.3177	0.0000	239.5712
Single Family Housing	467.488	94.8957	5.6082	0.0000	212.6675
Total		**580.3984**	**34.3006**	**0.0000**	**1,300.7101**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-851.4880	0.0000	0.0000	-851.4880

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	44 / 0	-272.8000	0.0000	0.0000	-272.8000
Grassland	5.8 / 0	-24.9980	0.0000	0.0000	-24.9980
Scrub	149.3 / 0	-2,134.9900	0.0000	0.0000	-2,134.9900
Trees	1.7 / 0	-188.7000	0.0000	0.0000	-188.7000
Total		**-2,621.4880**	**0.0000**	**0.0000**	**-2,621.4880**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2500	1,770.000 0	0.0000	0.0000	1,770.000 0
Total		**1,770.000 0**	**0.0000**	**0.0000**	**1,770.000 0**

NRSP 2030 Unmitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,023.00	1000sqft	42.10	1,023,000.00	0
Office Park	324.00	1000sqft	13.30	324,000.00	0
Elementary School	4,500.00	Student	65.00	357,600.00	0
High School	2,500.00	Student	55.00	142,400.00	0
Library	36.00	1000sqft	3.30	36,000.00	0
General Light Industry	33.10	1000sqft	4.30	33,100.00	0
Industrial Park	756.00	1000sqft	31.10	756,000.00	0
Golf Course	180.00	Acre	180.00	7,840,800.00	0
Health Club	43.30	1000sqft	20.80	43,300.00	0
Hotel	143.00	Room	4.10	100,000.00	0
Condo/Townhouse	11,201.00	Dwelling Unit	941.40	11,201,000.00	35283
Single Family Housing	8,316.00	Dwelling Unit	1,261.00	14,968,800.00	26195
Regional Shopping Center	3,247.00	1000sqft	133.60	3,247,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	374.54	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes 50% RPS.

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Construction emissions calculated separately.

Off-road Equipment -

Vehicle Trips - Trip rates and lengths are based on trip generation summary. Trips are assumed to be 100% primary trips.

Vechicle Emission Factors - Modified EMFAC2014. Includes reduction from Pavley/ACC. Excludes LCFS.

Vechicle Emission Factors -

Vechicle Emission Factors -

Woodstoves - Assumed that any decorative fireplaces are captured in the ConSol residential building energy analysis.

Energy Use - Updated to Title 24 - 2016 based on ConSol building analysis.

Water And Wastewater - Water use updated according to water study.

Solid Waste - Solid waste generation updated according to data for Santa Clarita, CA.

Land Use Change - Vegetation based on project information.

Sequestration - Number of trees based on project information.

Waste Mitigation - 75% diverted.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,001.10	308.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	2.49	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	4.25	0.00

tblEnergyUse	LightingElect	7.04	0.00
tblEnergyUse	LightingElect	1,608.84	767.00
tblEnergyUse	NT24E	3,126.97	2,855.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	2.89	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	4,244.00
tblEnergyUse	NT24NG	2,951.00	1,200.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	4.06	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	0.19	0.00
tblEnergyUse	NT24NG	0.49	0.00
tblEnergyUse	NT24NG	5,856.92	1,500.00
tblEnergyUse	T24E	269.81	499.00
tblEnergyUse	T24E	2.13	6.18

tblEnergyUse	T24E	2.75	9.46
tblEnergyUse	T24E	5.62	13.41
tblEnergyUse	T24E	2.75	9.46
tblEnergyUse	T24E	2.13	6.18
tblEnergyUse	T24E	3.12	7.84
tblEnergyUse	T24E	5.62	11.41
tblEnergyUse	T24E	2.75	9.46
tblEnergyUse	T24E	6.86	14.67
tblEnergyUse	T24E	4.90	11.89
tblEnergyUse	T24E	596.10	879.00
tblEnergyUse	T24NG	11,455.03	8,700.00
tblEnergyUse	T24NG	9.81	9.39
tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	10.54	9.43
tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	9.81	9.39
tblEnergyUse	T24NG	20.96	21.58
tblEnergyUse	T24NG	10.54	11.20
tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	10.10	8.87
tblEnergyUse	T24NG	1.21	1.32
tblEnergyUse	T24NG	23,944.02	20,500.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	9,520.85	0.00
tblFireplaces	NumberGas	7,068.60	0.00
tblFireplaces	NumberNoFireplace	1,120.10	11,201.00
tblFireplaces	NumberNoFireplace	831.60	8,316.00

tblFireplaces	NumberWood	560.05	0.00
tblFireplaces	NumberWood	415.80	0.00
tblLandUse	LandUseSquareFeet	376,215.17	357,600.00
tblLandUse	LandUseSquareFeet	331,652.44	142,400.00
tblLandUse	LandUseSquareFeet	207,636.00	100,000.00
tblLandUse	LotAcreage	23.48	42.10
tblLandUse	LotAcreage	7.44	13.30
tblLandUse	LotAcreage	8.64	65.00
tblLandUse	LotAcreage	7.61	55.00
tblLandUse	LotAcreage	0.83	3.30
tblLandUse	LotAcreage	0.76	4.30
tblLandUse	LotAcreage	17.36	31.10
tblLandUse	LotAcreage	0.99	20.80
tblLandUse	LotAcreage	4.77	4.10
tblLandUse	LotAcreage	700.06	941.40
tblLandUse	LotAcreage	2,700.00	1,261.00
tblLandUse	LotAcreage	74.54	133.60
tblLandUse	Population	32,035.00	35,283.00
tblLandUse	Population	23,784.00	26,195.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	374.54
tblProjectCharacteristics	OperationalYear	2014	2030
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	35,000.00
tblSolidWaste	SolidWasteGenerationRate	5,152.46	48,937.73
tblSolidWaste	SolidWasteGenerationRate	821.25	702.00
tblSolidWaste	SolidWasteGenerationRate	41.04	212.87
tblSolidWaste	SolidWasteGenerationRate	951.39	11,490.34
tblSolidWaste	SolidWasteGenerationRate	167.40	197.10

tblSolidWaste	SolidWasteGenerationRate	246.81	85.34
tblSolidWaste	SolidWasteGenerationRate	456.25	140.40
tblSolidWaste	SolidWasteGenerationRate	78.29	469.10
tblSolidWaste	SolidWasteGenerationRate	937.44	6,368.54
tblSolidWaste	SolidWasteGenerationRate	33.15	141.91
tblSolidWaste	SolidWasteGenerationRate	301.32	2,729.38
tblSolidWaste	SolidWasteGenerationRate	3,409.35	36,479.07
tblSolidWaste	SolidWasteGenerationRate	10,739.95	36,333.02
tblVehicleEF	HHD	9.3670e-003	0.10
tblVehicleEF	HHD	1.43	1.12
tblVehicleEF	HHD	1,534.62	1,533.16
tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	2.20	1.91
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.08	5.8528e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7340e-003	8.8525e-003
tblVehicleEF	HHD	0.07	5.5992e-003
tblVehicleEF	HHD	0.21	0.09
tblVehicleEF	HHD	0.27	3.6101e-004
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.24	0.20
tblVehicleEF	HHD	0.27	3.6101e-004
tblVehicleEF	LDA	9.1840e-003	2.7511e-003
tblVehicleEF	LDA	3.3810e-003	2.1477e-003
tblVehicleEF	LDA	0.62	0.41
tblVehicleEF	LDA	0.92	0.60

tblVehicleEF	LDA	226.81	206.77
tblVehicleEF	LDA	45.29	42.58
tblVehicleEF	LDA	0.51	0.54
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	2.4900e-003	1.4742e-003
tblVehicleEF	LDA	5.0030e-003	1.7886e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	2.3100e-003	1.3564e-003
tblVehicleEF	LDA	4.6420e-003	1.6446e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.01	6.9051e-003
tblVehicleEF	LDA	0.17	0.03
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	3.7400e-003	2.0694e-003
tblVehicleEF	LDA	7.5500e-004	4.3548e-004
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.17	0.03
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDT1	0.01	6.9174e-003

tblVehicleEF	LDT1	6.8870e-003	5.5504e-003
tblVehicleEF	LDT1	1.10	0.84
tblVehicleEF	LDT1	1.74	1.26
tblVehicleEF	LDT1	281.37	271.34
tblVehicleEF	LDT1	56.07	55.15
tblVehicleEF	LDT1	0.06	0.04
tblVehicleEF	LDT1	0.10	0.07
tblVehicleEF	LDT1	0.11	0.07
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.9120e-003	2.1875e-003
tblVehicleEF	LDT1	4.8330e-003	2.3432e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.7020e-003	2.0118e-003
tblVehicleEF	LDT1	4.4840e-003	2.1545e-003
tblVehicleEF	LDT1	0.09	0.07
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.08	0.06
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.58	0.11
tblVehicleEF	LDT1	0.12	0.07
tblVehicleEF	LDT1	4.3410e-003	2.7222e-003
tblVehicleEF	LDT1	8.8600e-004	5.7270e-004
tblVehicleEF	LDT1	0.09	0.07
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.08	0.06
tblVehicleEF	LDT1	0.04	0.03

tblVehicleEF	LDT1	0.58	0.11
tblVehicleEF	LDT1	0.13	0.08
tblVehicleEF	LDT2	0.01	4.0801e-003
tblVehicleEF	LDT2	4.4350e-003	2.8752e-003
tblVehicleEF	LDT2	0.78	0.58
tblVehicleEF	LDT2	1.18	0.80
tblVehicleEF	LDT2	352.48	298.31
tblVehicleEF	LDT2	70.23	60.47
tblVehicleEF	LDT2	0.18	0.21
tblVehicleEF	LDT2	0.08	0.04
tblVehicleEF	LDT2	0.09	0.05
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	2.4370e-003	1.7238e-003
tblVehicleEF	LDT2	4.8740e-003	2.0288e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	2.2610e-003	1.5853e-003
tblVehicleEF	LDT2	4.5220e-003	1.8654e-003
tblVehicleEF	LDT2	0.05	0.03
tblVehicleEF	LDT2	0.11	0.06
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.36	0.05
tblVehicleEF	LDT2	0.08	0.04
tblVehicleEF	LDT2	5.0880e-003	2.9869e-003
tblVehicleEF	LDT2	1.0280e-003	6.1739e-004
tblVehicleEF	LDT2	0.05	0.03

tblVehicleEF	LDT2	0.11	0.06
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.03	0.01
tblVehicleEF	LDT2	0.36	0.05
tblVehicleEF	LDT2	0.08	0.04
tblVehicleEF	LHD1	1.2860e-003	3.6736e-003
tblVehicleEF	LHD1	6.6620e-003	4.0659e-003
tblVehicleEF	LHD1	0.01	9.1700e-003
tblVehicleEF	LHD1	0.19	0.13
tblVehicleEF	LHD1	0.41	0.33
tblVehicleEF	LHD1	3.00	1.51
tblVehicleEF	LHD1	7.51	8.95
tblVehicleEF	LHD1	551.06	552.25
tblVehicleEF	LHD1	45.62	25.26
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.03	0.06
tblVehicleEF	LHD1	0.41	0.37
tblVehicleEF	LHD1	1.17	0.58
tblVehicleEF	LHD1	3.3700e-004	7.9699e-004
tblVehicleEF	LHD1	0.04	0.08
tblVehicleEF	LHD1	8.7160e-003	0.01
tblVehicleEF	LHD1	3.8850e-003	6.6415e-003
tblVehicleEF	LHD1	4.4700e-004	6.1094e-004
tblVehicleEF	LHD1	3.1000e-004	7.6251e-004
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.1790e-003	2.6308e-003
tblVehicleEF	LHD1	3.5770e-003	6.3363e-003
tblVehicleEF	LHD1	4.1400e-004	5.6174e-004

tblVehicleEF	LHD1	1.9860e-003	1.8077e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	1.5210e-003	1.2067e-003
tblVehicleEF	LHD1	0.03	0.04
tblVehicleEF	LHD1	0.33	0.22
tblVehicleEF	LHD1	0.25	0.12
tblVehicleEF	LHD1	8.6000e-005	8.8674e-005
tblVehicleEF	LHD1	6.0760e-003	5.3893e-003
tblVehicleEF	LHD1	5.6100e-004	2.7997e-004
tblVehicleEF	LHD1	1.9860e-003	1.8077e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	1.5210e-003	1.2067e-003
tblVehicleEF	LHD1	0.04	0.05
tblVehicleEF	LHD1	0.33	0.22
tblVehicleEF	LHD1	0.26	0.14
tblVehicleEF	LHD2	1.0510e-003	2.6621e-003
tblVehicleEF	LHD2	4.7010e-003	2.1632e-003
tblVehicleEF	LHD2	8.1870e-003	3.4330e-003
tblVehicleEF	LHD2	0.16	0.12
tblVehicleEF	LHD2	0.36	0.19
tblVehicleEF	LHD2	1.92	0.90
tblVehicleEF	LHD2	8.23	13.47
tblVehicleEF	LHD2	526.21	582.26
tblVehicleEF	LHD2	33.37	22.83
tblVehicleEF	LHD2	7.0730e-003	6.4276e-003
tblVehicleEF	LHD2	0.08	0.07

tblVehicleEF	LHD2	0.63	0.16
tblVehicleEF	LHD2	0.77	0.28
tblVehicleEF	LHD2	8.6000e-004	1.0093e-003
tblVehicleEF	LHD2	0.06	0.09
tblVehicleEF	LHD2	9.7000e-003	0.01
tblVehicleEF	LHD2	8.1050e-003	6.4462e-003
tblVehicleEF	LHD2	2.1400e-004	3.8123e-004
tblVehicleEF	LHD2	7.9100e-004	9.6567e-004
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	2.4250e-003	2.6996e-003
tblVehicleEF	LHD2	7.4580e-003	6.1540e-003
tblVehicleEF	LHD2	1.9900e-004	3.5053e-004
tblVehicleEF	LHD2	1.1270e-003	6.1692e-004
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	9.0900e-004	4.6027e-004
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.18	0.04
tblVehicleEF	LHD2	0.15	0.05
tblVehicleEF	LHD2	9.2000e-005	1.3132e-004
tblVehicleEF	LHD2	5.7420e-003	5.6600e-003
tblVehicleEF	LHD2	4.0500e-004	2.4348e-004
tblVehicleEF	LHD2	1.1270e-003	6.1692e-004
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	9.0900e-004	4.6027e-004
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.18	0.04

tblVehicleEF	LHD2	0.16	0.05
tblVehicleEF	MCY	0.00	0.56
tblVehicleEF	MCY	0.00	0.14
tblVehicleEF	MCY	18.00	17.95
tblVehicleEF	MCY	10.16	9.79
tblVehicleEF	MCY	144.16	192.36
tblVehicleEF	MCY	36.52	42.19
tblVehicleEF	MCY	3.8880e-003	5.2679e-003
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	0.30	0.31
tblVehicleEF	MCY	0.04	0.01
tblVehicleEF	MCY	8.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.2600e-004	2.6958e-003
tblVehicleEF	MCY	6.7800e-004	3.3482e-003
tblVehicleEF	MCY	0.02	5.0400e-003
tblVehicleEF	MCY	2.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.9600e-004	2.5136e-003
tblVehicleEF	MCY	5.9200e-004	3.1291e-003
tblVehicleEF	MCY	0.90	1.05
tblVehicleEF	MCY	0.38	0.57
tblVehicleEF	MCY	0.52	0.62
tblVehicleEF	MCY	2.29	2.56
tblVehicleEF	MCY	1.11	0.47
tblVehicleEF	MCY	2.02	1.97
tblVehicleEF	MCY	1.9560e-003	2.2964e-003
tblVehicleEF	MCY	6.2900e-004	6.3970e-004
tblVehicleEF	MCY	0.90	1.05
tblVehicleEF	MCY	0.38	0.57

tblVehicleEF	MCY	0.52	0.62
tblVehicleEF	MCY	2.52	3.22
tblVehicleEF	MCY	1.11	0.47
tblVehicleEF	MCY	2.17	2.15
tblVehicleEF	MDV	0.02	6.3254e-003
tblVehicleEF	MDV	9.3950e-003	5.4664e-003
tblVehicleEF	MDV	1.16	0.75
tblVehicleEF	MDV	2.17	1.20
tblVehicleEF	MDV	468.58	401.69
tblVehicleEF	MDV	93.95	80.08
tblVehicleEF	MDV	0.13	0.12
tblVehicleEF	MDV	0.13	0.07
tblVehicleEF	MDV	0.18	0.09
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	2.4270e-003	1.7875e-003
tblVehicleEF	MDV	4.4780e-003	2.0419e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	2.2520e-003	1.6458e-003
tblVehicleEF	MDV	4.1550e-003	1.8774e-003
tblVehicleEF	MDV	0.09	0.05
tblVehicleEF	MDV	0.19	0.11
tblVehicleEF	MDV	0.10	0.06
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.55	0.07
tblVehicleEF	MDV	0.17	0.07
tblVehicleEF	MDV	6.5100e-003	4.0178e-003

tblVehicleEF	MDV	1.3230e-003	8.2060e-004
tblVehicleEF	MDV	0.09	0.05
tblVehicleEF	MDV	0.19	0.11
tblVehicleEF	MDV	0.10	0.06
tblVehicleEF	MDV	0.04	0.02
tblVehicleEF	MDV	0.55	0.07
tblVehicleEF	MDV	0.18	0.08
tblVehicleEF	MH	0.00	6.0056e-003
tblVehicleEF	MH	0.00	0.02
tblVehicleEF	MH	0.25	0.34
tblVehicleEF	MH	4.15	3.45
tblVehicleEF	MH	613.93	1,105.54
tblVehicleEF	MH	28.95	57.38
tblVehicleEF	MH	2.1430e-003	8.1443e-004
tblVehicleEF	MH	0.61	0.66
tblVehicleEF	MH	0.54	0.57
tblVehicleEF	MH	0.05	0.13
tblVehicleEF	MH	8.4550e-003	0.01
tblVehicleEF	MH	8.4230e-003	8.9218e-003
tblVehicleEF	MH	2.2300e-004	8.3704e-004
tblVehicleEF	MH	0.02	0.06
tblVehicleEF	MH	2.1140e-003	3.2140e-003
tblVehicleEF	MH	7.7500e-003	8.5003e-003
tblVehicleEF	MH	2.0700e-004	7.6963e-004
tblVehicleEF	MH	0.43	0.45
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MH	0.02	0.02

tblVehicleEF	MH	0.73	8.1089e-003
tblVehicleEF	MH	0.22	0.20
tblVehicleEF	MH	6.7550e-003	0.01
tblVehicleEF	MH	3.9300e-004	6.3353e-004
tblVehicleEF	MH	0.43	0.45
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.73	8.1089e-003
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MHD	3.2390e-003	2.2769e-003
tblVehicleEF	MHD	0.38	0.21
tblVehicleEF	MHD	919.01	1,122.44
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.83	0.69
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	2.8359e-003
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.8000e-003	3.0000e-003
tblVehicleEF	MHD	0.03	2.7081e-003
tblVehicleEF	MHD	0.07	0.03
tblVehicleEF	MHD	0.33	0.01
tblVehicleEF	MHD	9.7980e-003	0.01
tblVehicleEF	MHD	0.09	0.04
tblVehicleEF	MHD	0.33	0.01
tblVehicleEF	OBUS	2.9950e-003	3.6290e-003
tblVehicleEF	OBUS	0.58	0.29

tblVehicleEF	OBUS	1,052.70	1,230.26
tblVehicleEF	OBUS	2.7880e-003	2.6426e-003
tblVehicleEF	OBUS	1.10	0.65
tblVehicleEF	OBUS	0.10	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	2.8401e-003
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	2.6860e-003	3.0000e-003
tblVehicleEF	OBUS	0.04	2.6994e-003
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.31	0.04
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.12	0.04
tblVehicleEF	OBUS	0.31	0.04
tblVehicleEF	SBUS	6.5080e-003	0.81
tblVehicleEF	SBUS	8.3150e-003	5.5521e-003
tblVehicleEF	SBUS	0.00	0.05
tblVehicleEF	SBUS	1.65	17.34
tblVehicleEF	SBUS	1.36	0.36
tblVehicleEF	SBUS	16.08	12.17
tblVehicleEF	SBUS	570.74	1,829.41
tblVehicleEF	SBUS	1,031.10	1,015.81
tblVehicleEF	SBUS	115.30	120.98
tblVehicleEF	SBUS	5.0800e-004	6.9949e-004
tblVehicleEF	SBUS	5.36	7.56
tblVehicleEF	SBUS	4.62	1.72
tblVehicleEF	SBUS	1.49	7.91
tblVehicleEF	SBUS	8.6910e-003	3.8181e-003

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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	8.7676e-003
tblVehicleEF	SBUS	1.5380e-003	2.1349e-003
tblVehicleEF	SBUS	7.9950e-003	3.6529e-003
tblVehicleEF	SBUS	0.24	0.32
tblVehicleEF	SBUS	2.7400e-003	2.5999e-003
tblVehicleEF	SBUS	0.04	8.3686e-003
tblVehicleEF	SBUS	1.4270e-003	1.9630e-003
tblVehicleEF	SBUS	0.02	7.7031e-003
tblVehicleEF	SBUS	0.18	0.06
tblVehicleEF	SBUS	0.14	2.06
tblVehicleEF	SBUS	9.3890e-003	4.5899e-003
tblVehicleEF	SBUS	0.23	0.06
tblVehicleEF	SBUS	1.74	0.02
tblVehicleEF	SBUS	1.01	0.67
tblVehicleEF	SBUS	6.0500e-003	0.02
tblVehicleEF	SBUS	0.01	9.8074e-003
tblVehicleEF	SBUS	1.5630e-003	1.4207e-003
tblVehicleEF	SBUS	0.02	7.7031e-003
tblVehicleEF	SBUS	0.18	0.06
tblVehicleEF	SBUS	0.16	2.99
tblVehicleEF	SBUS	9.3890e-003	4.5899e-003
tblVehicleEF	SBUS	0.26	0.07
tblVehicleEF	SBUS	1.74	0.02
tblVehicleEF	SBUS	1.08	0.73
tblVehicleEF	UBUS	0.00	1.62
tblVehicleEF	UBUS	0.00	0.05

tblVehicleEF	UBUS	2.48	6.83
tblVehicleEF	UBUS	5.30	8.08
tblVehicleEF	UBUS	1,918.79	1,802.66
tblVehicleEF	UBUS	19.75	125.59
tblVehicleEF	UBUS	3.2720e-003	1.7308e-003
tblVehicleEF	UBUS	8.07	3.98
tblVehicleEF	UBUS	0.79	1.27
tblVehicleEF	UBUS	0.72	0.54
tblVehicleEF	UBUS	8.0000e-003	0.01
tblVehicleEF	UBUS	0.15	0.05
tblVehicleEF	UBUS	2.1700e-004	1.3647e-003
tblVehicleEF	UBUS	0.31	0.23
tblVehicleEF	UBUS	2.0000e-003	3.0000e-003
tblVehicleEF	UBUS	0.14	0.04
tblVehicleEF	UBUS	2.0100e-004	1.2548e-003
tblVehicleEF	UBUS	2.7160e-003	3.5939e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.6680e-003	2.5575e-003
tblVehicleEF	UBUS	0.41	0.31
tblVehicleEF	UBUS	0.46	0.02
tblVehicleEF	UBUS	0.43	0.70
tblVehicleEF	UBUS	0.02	8.4946e-003
tblVehicleEF	UBUS	3.1600e-004	1.4036e-003
tblVehicleEF	UBUS	2.7160e-003	3.5939e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.6680e-003	2.5575e-003
tblVehicleEF	UBUS	0.46	1.97
tblVehicleEF	UBUS	0.46	0.02

tblVehicleEF	UBUS	0.45	0.77
tblVehicleTrips	CC_TL	10.10	14.40
tblVehicleTrips	CC_TL	10.10	11.90
tblVehicleTrips	CC_TL	10.10	12.00
tblVehicleTrips	CC_TL	10.10	11.20
tblVehicleTrips	CC_TL	10.10	12.10
tblVehicleTrips	CC_TL	10.10	14.10
tblVehicleTrips	CC_TL	10.10	11.80
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CC_TL	10.10	11.80
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CC_TL	10.10	11.60
tblVehicleTrips	CNW_TL	7.90	14.40
tblVehicleTrips	CNW_TL	7.90	11.90
tblVehicleTrips	CNW_TL	7.90	12.00
tblVehicleTrips	CNW_TL	7.90	11.20
tblVehicleTrips	CNW_TL	7.90	12.10
tblVehicleTrips	CNW_TL	7.90	14.10
tblVehicleTrips	CNW_TL	7.90	11.80
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CNW_TL	7.90	11.80
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CNW_TL	7.90	11.60
tblVehicleTrips	CW_TL	18.50	14.40
tblVehicleTrips	CW_TL	18.50	11.90
tblVehicleTrips	CW_TL	18.50	12.00
tblVehicleTrips	CW_TL	18.50	11.20
tblVehicleTrips	CW_TL	18.50	12.10

tblVehicleTrips	CW_TL	18.50	14.10
tblVehicleTrips	CW_TL	18.50	11.80
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	CW_TL	18.50	11.80
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	CW_TL	18.50	11.60
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	38.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	44.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	12.90	8.50
tblVehicleTrips	HO_TL	12.90	8.90
tblVehicleTrips	HS_TL	9.60	8.50
tblVehicleTrips	HS_TL	9.60	8.90
tblVehicleTrips	HW_TL	19.80	8.50
tblVehicleTrips	HW_TL	19.80	8.90
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	58.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	44.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	7.16	6.58
tblVehicleTrips	ST_TR	1.32	1.43
tblVehicleTrips	ST_TR	2.37	1.98
tblVehicleTrips	ST_TR	5.82	5.99
tblVehicleTrips	ST_TR	20.87	2.28

tblVehicleTrips	ST_TR	0.61	0.39
tblVehicleTrips	ST_TR	8.19	6.43
tblVehicleTrips	ST_TR	2.49	1.73
tblVehicleTrips	ST_TR	46.55	55.09
tblVehicleTrips	ST_TR	1.64	1.18
tblVehicleTrips	ST_TR	49.97	48.79
tblVehicleTrips	ST_TR	10.08	7.95
tblVehicleTrips	SU_TR	6.07	5.58
tblVehicleTrips	SU_TR	0.68	0.73
tblVehicleTrips	SU_TR	0.98	0.82
tblVehicleTrips	SU_TR	5.88	6.06
tblVehicleTrips	SU_TR	26.73	2.93
tblVehicleTrips	SU_TR	0.25	0.16
tblVehicleTrips	SU_TR	5.95	4.67
tblVehicleTrips	SU_TR	0.73	0.51
tblVehicleTrips	SU_TR	25.49	30.17
tblVehicleTrips	SU_TR	0.76	0.55
tblVehicleTrips	SU_TR	25.24	24.64
tblVehicleTrips	SU_TR	8.77	6.92
tblVehicleTrips	WD_TR	6.59	6.05
tblVehicleTrips	WD_TR	1.29	0.88
tblVehicleTrips	WD_TR	6.97	7.53
tblVehicleTrips	WD_TR	11.01	9.19
tblVehicleTrips	WD_TR	5.04	5.19
tblVehicleTrips	WD_TR	32.93	3.61
tblVehicleTrips	WD_TR	1.71	1.09
tblVehicleTrips	WD_TR	8.17	6.41
tblVehicleTrips	WD_TR	6.96	4.85

tblVehicleTrips	WD_TR	56.24	66.56
tblVehicleTrips	WD_TR	11.42	8.24
tblVehicleTrips	WD_TR	42.94	41.92
tblVehicleTrips	WD_TR	9.57	7.55
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	IndoorWaterUseRate	729,790,240.99	475,130,783.00
tblWater	IndoorWaterUseRate	10,909,080.00	7,102,385.00
tblWater	IndoorWaterUseRate	7,654,375.00	4,968,336.00
tblWater	IndoorWaterUseRate	181,821,624.20	118,375,463.00
tblWater	IndoorWaterUseRate	2,560,898.14	1,655,728.00
tblWater	IndoorWaterUseRate	11,012,400.00	7,169,638.00
tblWater	IndoorWaterUseRate	3,627,448.11	2,361,656.00
tblWater	IndoorWaterUseRate	174,825,000.00	113,820,057.00
tblWater	IndoorWaterUseRate	1,126,400.70	733,344.00
tblWater	IndoorWaterUseRate	57,585,734.35	37,491,249.00
tblWater	IndoorWaterUseRate	240,513,477.26	156,586,319.00

tblWater	IndoorWaterUseRate	541,820,877.07	352,753,307.00
tblWater	OutdoorWaterUseRate	460,085,151.93	1,145,624,121.00
tblWater	OutdoorWaterUseRate	28,051,920.00	69,849,991.00
tblWater	OutdoorWaterUseRate	111,439,059.99	277,486,131.00
tblWater	OutdoorWaterUseRate	214,466,642.94	534,028,643.00
tblWater	OutdoorWaterUseRate	1,569,582.73	3,881,230.00
tblWater	OutdoorWaterUseRate	28,317,600.00	70,511,592.00
tblWater	OutdoorWaterUseRate	403,049.79	1,003,605.00
tblWater	OutdoorWaterUseRate	1,761,806.23	4,386,955.00
tblWater	OutdoorWaterUseRate	35,294,482.34	87,884,262.00
tblWater	OutdoorWaterUseRate	147,411,486.06	367,057,386.00
tblWater	OutdoorWaterUseRate	341,582,726.85	850,550,929.00
tblWoodstoves	NumberCatalytic	560.05	0.00
tblWoodstoves	NumberCatalytic	415.80	0.00
tblWoodstoves	NumberNoncatalytic	560.05	0.00
tblWoodstoves	NumberNoncatalytic	415.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	329.0919	329.0919	0.3141	0.0000	335.6871
Energy											0.0000	44,801.5660	44,801.5660	2.4487	0.7582	45,088.0370
Mobile											0.0000	360,388.6566	360,388.6566	14.0100	0.0000	360,682.8664
Waste											29,288.9165	0.0000	29,288.9165	1,730.9254	0.0000	65,638.3493
Water											405.4975	3,841.4025	4,246.9000	41.9459	1.0450	5,451.6983
Total											**29,694.4139**	**409,360.7170**	**439,055.1309**	**1,789.6441**	**1.8032**	**477,196.6382**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	329.0919	329.0919	0.3141	0.0000	335.6871
Energy											0.0000	44,801.5660	44,801.5660	2.4487	0.7582	45,088.0370
Mobile											0.0000	360,388.6566	360,388.6566	14.0100	0.0000	360,682.8664
Waste											7,322.2291	0.0000	7,322.2291	432.7313	0.0000	16,409.5873
Water											405.4975	3,841.4025	4,246.9000	41.9383	1.0434	5,451.0514
Total											**7,727.7266**	**409,360.7170**	**417,088.4436**	**491.4424**	**1.8016**	**427,967.2292**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**73.98**	**0.00**	**5.00**	**72.54**	**0.09**	**10.32**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	24,780.0000
Vegetation Land Change	-64,130.3350
Total	**-39,350.3350**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Phase	Trenching	1/1/2016	12/31/2015	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Phase				0.00	19.80	7.90				

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	360,388.6566	360,388.6566	14.0100	0.0000	360,682.8664
Unmitigated											0.0000	360,388.6566	360,388.6566	14.0100	0.0000	360,682.8664

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	67,766.05	73,702.58	62501.58	209,965,209	209,965,209
Elementary School	3,960.00	0.00	0.00	14,826,240	14,826,240
General Light Industry	249.24	47.33	24.16	815,400	815,400
General Office Building	9,401.37	2,025.54	838.86	31,119,660	31,119,660
Golf Course	934.20	1,078.20	1090.80	3,983,616	3,983,616
Health Club	156.31	98.72	126.87	633,704	633,704
High School	2,725.00	975.00	400.00	10,998,000	10,998,000
Hotel	916.63	919.49	667.81	3,786,188	3,786,188
Industrial Park	3,666.60	1,307.88	385.56	12,808,911	12,808,911
Library	2,396.16	1,983.24	1086.12	9,234,778	9,234,778
Office Park	2,669.76	382.32	178.20	8,896,401	8,896,401
Regional Shopping Center	136,114.24	158,421.13	80006.08	554,339,841	554,339,841
Single Family Housing	62,785.80	66,112.20	57546.72	202,515,689	202,515,689
Total	293,741.37	307,053.64	204,852.76	1,063,923,637	1,063,923,637

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	8.50	8.50	8.50	40.20	19.20	40.60	100	0	0
Elementary School	14.40	14.40	14.40	65.00	30.00	5.00	100	0	0
General Light Industry	11.90	11.90	11.90	59.00	28.00	13.00	100	0	0
General Office Building	12.00	12.00	12.00	33.00	48.00	19.00	100	0	0
Golf Course	11.20	11.20	11.20	33.00	48.00	19.00	100	0	0
Health Club	12.10	12.10	12.10	16.90	64.10	19.00	100	0	0
High School	14.10	14.10	14.10	77.80	17.20	5.00	100	0	0
Hotel	11.80	11.80	11.80	19.40	61.60	19.00	100	0	0
Industrial Park	12.30	12.30	12.30	59.00	28.00	13.00	100	0	0
Library	11.80	11.80	11.80	52.00	43.00	5.00	100	0	0
Office Park	12.30	12.30	12.30	33.00	48.00	19.00	100	0	0
Regional Shopping Center	11.60	11.60	11.60	16.30	64.70	19.00	100	0	0
Single Family Housing	8.90	8.90	8.90	40.20	19.20	40.60	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.539325	0.044357	0.212325	0.116769	0.013824	0.006428	0.021462	0.034355	0.002643	0.001731	0.005268	0.000699	0.000814

4.4 Fleet Mix

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	tons/yr										MT/yr					
NaturalGas Mitigated											0.0000	17,510.5256	17,510.5256	0.3356	0.3210	17,617.0918
NaturalGas Unmitigated											0.0000	17,510.5256	17,510.5256	0.3356	0.3210	17,617.0918
Electricity Mitigated											0.0000	27,291.0404	27,291.0404	2.1131	0.4372	27,470.9452
Electricity Unmitigated											0.0000	27,291.0404	27,291.0404	2.1131	0.4372	27,470.9452

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.1089e+008											0.0000	5,917.5074	5,917.5074	0.1134	0.1085	5,953.5203
Elementary School	3.35786e+006											0.0000	179.1884	179.1884	3.4300e-003	3.2900e-003	180.2789
General Light Industry	637837											0.0000	34.0374	34.0374	6.5000e-004	6.2000e-004	34.2446
General Office Building	9.64689e+006											0.0000	514.7948	514.7948	9.8700e-003	9.4400e-003	517.9277
Golf Course	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	834391											0.0000	44.5263	44.5263	8.5000e-004	8.2000e-004	44.7973
High School	1.33714e+006											0.0000	71.3547	71.3547	1.3700e-003	1.3100e-003	71.7889
Hotel	2.158e+006											0.0000	115.1591	115.1591	2.2100e-003	2.1100e-003	115.8599
Industrial Park	8.4672e+006											0.0000	451.8420	451.8420	8.6600e-003	8.2800e-003	454.5919
Library	693720											0.0000	37.0195	37.0195	7.1000e-004	6.8000e-004	37.2448
Office Park	2.87388e+006											0.0000	153.3612	153.3612	2.9400e-003	2.8100e-003	154.2945
Regional Shopping Center	4.28604e+006											0.0000	228.7194	228.7194	4.3800e-003	4.1900e-003	230.1114
Single Family Housing	1.82952e+008											0.0000	9,763.0154	9,763.0154	0.1871	0.1790	9,822.4315
Total												**0.0000**	**17,510.5256**	**17,510.5256**	**0.3356**	**0.3210**	**17,617.0918**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.1089e +008											0.0000	5,917.5074	5,917.5074	0.1134	0.1085	5,953.5203
Elementary School	3.35786e +006											0.0000	179.1884	179.1884	3.4300e-003	3.2900e-003	180.2789
General Light Industry	637837											0.0000	34.0374	34.0374	6.5000e-004	6.2000e-004	34.2446
General Office Building	9.64689e +006											0.0000	514.7948	514.7948	9.8700e-003	9.4400e-003	517.9277
Golf Course	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	834391											0.0000	44.5263	44.5263	8.5000e-004	8.2000e-004	44.7973
High School	1.33714e +006											0.0000	71.3547	71.3547	1.3700e-003	1.3100e-003	71.7889
Hotel	2.158e +006											0.0000	115.1591	115.1591	2.2100e-003	2.1100e-003	115.8599
Industrial Park	8.4672e +006											0.0000	451.8420	451.8420	8.6600e-003	8.2800e-003	454.5919
Library	693720											0.0000	37.0195	37.0195	7.1000e-004	6.8000e-004	37.2448
Office Park	2.87388e +006											0.0000	153.3612	153.3612	2.9400e-003	2.8100e-003	154.2945
Regional Shopping Center	4.28604e +006											0.0000	228.7194	228.7194	4.3800e-003	4.1900e-003	230.1114
Single Family Housing	1.82952e +008											0.0000	9,763.0154	9,763.0154	0.1871	0.1790	9,822.4315
Total												**0.0000**	**17,510.5256**	**17,510.5256**	**0.3356**	**0.3210**	**17,617.0918**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.10181e+007	6,968.4965	0.5396	0.1116	7,014.4334
Elementary School	2.20997e+006	375.4481	0.0291	6.0100e-003	377.9231
General Light Industry	313126	53.1965	4.1200e-003	8.5000e-004	53.5472
General Office Building	1.37184e+007	2,330.6033	0.1805	0.0373	2,345.9668
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	409618	69.5894	5.3900e-003	1.1100e-003	70.0481
High School	880032	149.5073	0.0116	2.4000e-003	150.4929
Hotel	784000	133.1926	0.0103	2.1300e-003	134.0706
Industrial Park	8.62596e+006	1,465.4513	0.1135	0.0235	1,475.1117
Library	340560	57.8572	4.4800e-003	9.3000e-004	58.2386
Office Park	4.75308e+006	807.4936	0.0625	0.0129	812.8166
Regional Shopping Center	3.86068e+007	6,558.8559	0.5078	0.1051	6,602.0925
Single Family Housing	4.89812e+007	8,321.3487	0.6443	0.1333	8,376.2038
Total		**27,291.0404**	**2.1131**	**0.4372**	**27,470.9452**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.10181e+007	6,968.4965	0.5396	0.1116	7,014.4334
Elementary School	2.20997e+006	375.4481	0.0291	6.0100e-003	377.9231
General Light Industry	313126	53.1965	4.1200e-003	8.5000e-004	53.5472
General Office Building	1.37184e+007	2,330.6033	0.1805	0.0373	2,345.9668
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	409618	69.5894	5.3900e-003	1.1100e-003	70.0481
High School	880032	149.5073	0.0116	2.4000e-003	150.4929
Hotel	784000	133.1926	0.0103	2.1300e-003	134.0706
Industrial Park	8.62596e+006	1,465.4513	0.1135	0.0235	1,475.1117
Library	340560	57.8572	4.4800e-003	9.3000e-004	58.2386
Office Park	4.75308e+006	807.4936	0.0625	0.0129	812.8166
Regional Shopping Center	3.86068e+007	6,558.8559	0.5078	0.1051	6,602.0925
Single Family Housing	4.89812e+007	8,321.3487	0.6443	0.1333	8,376.2038
Total		**27,291.0404**	**2.1131**	**0.4372**	**27,470.9452**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	329.0919	329.0919	0.3141	0.0000	335.6871
Unmitigated											0.0000	329.0919	329.0919	0.3141	0.0000	335.6871

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	329.0919	329.0919	0.3141	0.0000	335.6871
Total											**0.0000**	**329.0919**	**329.0919**	**0.3141**	**0.0000**	**335.6871**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	329.0919	329.0919	0.3141	0.0000	335.6871
Total											**0.0000**	**329.0919**	**329.0919**	**0.3141**	**0.0000**	**335.6871**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	4,246.9000	41.9459	1.0450	5,451.6983
Mitigated	4,246.9000	41.9383	1.0434	5,451.0514

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	475.131 / 1145.62	1,488.986 2	15.5858	0.3870	1,936.258 9
Elementary School	7.10238 / 69.85	60.7744	0.2360	6.4000e-003	67.7142
General Light Industry	4.96834 / 0	6.8187	0.1623	3.9100e-003	11.4380
General Office Building	118.375 / 277.486	365.1715	3.8826	0.0963	476.5681
Golf Course	0 / 534.029	390.1189	0.0302	6.2500e-003	392.6906
Health Club	1.65573 / 3.88123	5.1077	0.0543	1.3500e-003	6.6658
High School	7.16964 / 70.5116	61.3500	0.2382	6.4600e-003	68.3556
Hotel	2.36166 / 1.00361	3.9744	0.0772	1.8700e-003	6.1750
Industrial Park	113.82 / 0	156.2102	3.7181	0.0895	262.0351
Library	0.733344 / 4.38696	4.2112	0.0242	6.3000e-004	4.9142
Office Park	37.4912 / 87.8843	115.6554	1.2297	0.0305	150.9364
Regional Shopping Center	156.586 / 367.057	483.0469	5.1359	0.1274	630.4016
Single Family Housing	352.753 / 850.551	1,105.474 6	11.5714	0.2873	1,437.545 0
Total		**4,246.900 0**	**41.9459**	**1.0450**	**5,451.698 3**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	475.131 / 1145.62	1,488.986 2	15.5829	0.3864	1,936.018 4
Elementary School	7.10238 / 69.85	60.7744	0.2359	6.3900e-003	67.7107
General Light Industry	4.96834 / 0	6.8187	0.1623	3.9000e-003	11.4355
General Office Building	118.375 / 277.486	365.1715	3.8819	0.0962	476.5082
Golf Course	0 / 534.029	390.1189	0.0302	6.2500e-003	392.6906
Health Club	1.65573 / 3.88123	5.1077	0.0543	1.3500e-003	6.6650
High School	7.16964 / 70.5116	61.3500	0.2382	6.4500e-003	68.3519
Hotel	2.36166 / 1.00361	3.9744	0.0772	1.8700e-003	6.1738
Industrial Park	113.82 / 0	156.2102	3.7175	0.0894	261.9775
Library	0.733344 / 4.38696	4.2112	0.0242	6.3000e-004	4.9138
Office Park	37.4912 / 87.8843	115.6554	1.2295	0.0305	150.9174
Regional Shopping Center	156.586 / 367.057	483.0469	5.1350	0.1272	630.3223
Single Family Housing	352.753 / 850.551	1,105.474 6	11.5693	0.2869	1,437.366 5
Total		**4,246.900 0**	**41.9383**	**1.0434**	**5,451.051 4**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7,322.229 1	432.7313	0.0000	16,409.58 73
Unmitigated	29,288.91 65	1,730.925 4	0.0000	65,638.34 93

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	48937.7	9,933.9169	587.0777	0.0000	22,262.5480
Elementary School	702	142.4997	8.4215	0.0000	319.3509
General Light Industry	212.87	43.2107	2.5537	0.0000	96.8379
General Office Building	11490.3	2,332.4352	137.8430	0.0000	5,227.1376
Golf Course	197.1	40.0095	2.3645	0.0000	89.6639
Health Club	85.34	17.3233	1.0238	0.0000	38.8225
High School	140.4	28.4999	1.6843	0.0000	63.8702
Hotel	469.1	95.2231	5.6275	0.0000	213.4010
Industrial Park	6368.54	1,292.7561	76.3997	0.0000	2,897.1497
Library	141.91	28.8065	1.7024	0.0000	64.5571
Office Park	2729.38	554.0395	32.7428	0.0000	1,241.6382
Regional Shopping Center	36479.1	7,404.9215	437.6183	0.0000	16,594.9064
Single Family Housing	36333	7,375.2747	435.8663	0.0000	16,528.4659
Total		**29,288.9165**	**1,730.9254**	**0.0000**	**65,638.3493**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	12234.4	2,483.4792	146.7694	0.0000	5,565.6370
Elementary School	175.5	35.6249	2.1054	0.0000	79.8377
General Light Industry	53.2175	10.8027	0.6384	0.0000	24.2095
General Office Building	2872.59	583.1088	34.4607	0.0000	1,306.7844
Golf Course	49.275	10.0024	0.5911	0.0000	22.4160
Health Club	21.335	4.3308	0.2559	0.0000	9.7056
High School	35.1	7.1250	0.4211	0.0000	15.9676
Hotel	117.275	23.8058	1.4069	0.0000	53.3503
Industrial Park	1592.14	323.1890	19.0999	0.0000	724.2874
Library	35.4775	7.2016	0.4256	0.0000	16.1393
Office Park	682.345	138.5099	8.1857	0.0000	310.4095
Regional Shopping Center	9119.77	1,851.2304	109.4046	0.0000	4,148.7266
Single Family Housing	9083.25	1,843.8187	108.9666	0.0000	4,132.1165
Total		**7,322.2291**	**432.7313**	**0.0000**	**16,409.5873**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-39,350.3350	0.0000	0.0000	-39,350.3350

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	2036.3 / 138	-11,769.4600	0.0000	0.0000	-11,769.4600
Grassland	950.5 / 0	-4,096.6550	0.0000	0.0000	-4,096.6550
Scrub	1903.4 / 0	-27,218.6200	0.0000	0.0000	-27,218.6200
Trees	107 / 0	-11,877.0000	0.0000	0.0000	-11,877.0000
Trees	82.6 / 0	-9,168.6000	0.0000	0.0000	-9,168.6000
Wetlands	8.8 / 0	0.0000	0.0000	0.0000	0.0000
Total		**-64,130.3350**	**0.0000**	**0.0000**	**-64,130.3350**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	35000	24,780.0000	0.0000	0.0000	24,780.0000
Total		**24,780.0000**	**0.0000**	**0.0000**	**24,780.0000**

VCC 2030 Unmitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,100.00	1000sqft	53.00	1,100,000.00	0
Industrial Park	2,300.00	1000sqft	110.90	2,300,000.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2030

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 374.54 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes 50% RPS.

Land Use - Land use based on project information.

Construction Phase - Construction emissions calculated separately.

Off-road Equipment -

Vehicle Trips - Trip rates and lengths are based on trip generation summary. Trips are assumed to be 100% primary trips.

Vechicle Emission Factors - Modified EMFAC2014. Includes reduction from Pavley/ACC. Excludes LCFS.

Vechicle Emission Factors -

Vechicle Emission Factors -

Woodstoves -

Energy Use - Updated to Title 24 - 2016 based on ConSol building analysis.

Water And Wastewater - Water use updated according to water study.

Solid Waste - Solid waste generation updated according to data for Santa Clarita, CA.

Land Use Change - Vegetation based on project information.

Sequestration - Number of trees based on project information.

Waste Mitigation - 75% diverted.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	4.25	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	0.19	0.00
tblEnergyUse	T24E	5.62	11.41
tblEnergyUse	T24E	6.86	14.67
tblEnergyUse	T24NG	10.54	11.20
tblEnergyUse	T24NG	10.10	8.87
tblLandUse	LotAcreage	25.25	53.00
tblLandUse	LotAcreage	52.80	110.90
tblProjectCharacteristics	CO2IntensityFactor	630.89	374.54
tblProjectCharacteristics	OperationalYear	2014	2030
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	5,000.00
tblSolidWaste	SolidWasteGenerationRate	2,852.00	19,375.00
tblSolidWaste	SolidWasteGenerationRate	1,023.00	9,266.00
tblVehicleEF	HHD	9.3670e-003	0.10
tblVehicleEF	HHD	1.43	1.12
tblVehicleEF	HHD	1,534.62	1,533.16
tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	2.20	1.91
tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.08	5.8530e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7340e-003	8.8520e-003
tblVehicleEF	HHD	0.07	5.5990e-003
tblVehicleEF	HHD	0.21	0.09
tblVehicleEF	HHD	0.27	3.6100e-004
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.24	0.20
tblVehicleEF	HHD	0.27	3.6100e-004
tblVehicleEF	LDA	9.1840e-003	2.7510e-003
tblVehicleEF	LDA	3.3810e-003	2.1480e-003
tblVehicleEF	LDA	0.62	0.41
tblVehicleEF	LDA	0.92	0.60
tblVehicleEF	LDA	226.81	206.77
tblVehicleEF	LDA	45.29	42.58
tblVehicleEF	LDA	0.51	0.54
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	2.4900e-003	1.4740e-003
tblVehicleEF	LDA	5.0030e-003	1.7890e-003
tblVehicleEF	LDA	2.3100e-003	1.3560e-003
tblVehicleEF	LDA	4.6420e-003	1.6450e-003
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.01	6.9050e-003
tblVehicleEF	LDA	0.17	0.03
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDA	3.7400e-003	2.0690e-003

tblVehicleEF	LDA	7.5500e-004	4.3500e-004
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.17	0.03
tblVehicleEF	LDA	0.06	0.03
tblVehicleEF	LDT1	0.01	6.9170e-003
tblVehicleEF	LDT1	6.8870e-003	5.5500e-003
tblVehicleEF	LDT1	1.10	0.84
tblVehicleEF	LDT1	1.74	1.26
tblVehicleEF	LDT1	281.37	271.34
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tblVehicleEF	LDT1	0.06	0.04
tblVehicleEF	LDT1	0.10	0.07
tblVehicleEF	LDT1	0.11	0.07
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tblVehicleEF	LDT1	4.8330e-003	2.3430e-003
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tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.08	0.06
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.58	0.11
tblVehicleEF	LDT1	0.12	0.07
tblVehicleEF	LDT1	4.3410e-003	2.7220e-003
tblVehicleEF	LDT1	8.8600e-004	5.7300e-004
tblVehicleEF	LDT1	0.09	0.07
tblVehicleEF	LDT1	0.18	0.15

tblVehicleEF	LDT1	0.08	0.06
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.58	0.11
tblVehicleEF	LDT1	0.13	0.08
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tblVehicleEF	LDT2	0.08	0.04
tblVehicleEF	LDT2	0.09	0.05
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tblVehicleEF	LDT2	0.11	0.06
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.02	0.01
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tblVehicleEF	LDT2	0.08	0.04
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tblVehicleEF	LDT2	0.11	0.06
tblVehicleEF	LDT2	0.06	0.03
tblVehicleEF	LDT2	0.03	0.01
tblVehicleEF	LDT2	0.36	0.05

tblVehicleEF	LDT2	0.08	0.04
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tblVehicleEF	LHD1	0.41	0.33
tblVehicleEF	LHD1	3.00	1.51
tblVehicleEF	LHD1	7.51	8.95
tblVehicleEF	LHD1	551.06	552.25
tblVehicleEF	LHD1	45.62	25.26
tblVehicleEF	LHD1	0.04	0.01
tblVehicleEF	LHD1	0.03	0.06
tblVehicleEF	LHD1	0.41	0.37
tblVehicleEF	LHD1	1.17	0.58
tblVehicleEF	LHD1	3.3700e-004	7.9700e-004
tblVehicleEF	LHD1	0.04	0.08
tblVehicleEF	LHD1	8.7160e-003	0.01
tblVehicleEF	LHD1	3.8850e-003	6.6420e-003
tblVehicleEF	LHD1	4.4700e-004	6.1100e-004
tblVehicleEF	LHD1	3.1000e-004	7.6300e-004
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.1790e-003	2.6310e-003
tblVehicleEF	LHD1	3.5770e-003	6.3360e-003
tblVehicleEF	LHD1	4.1400e-004	5.6200e-004
tblVehicleEF	LHD1	1.9860e-003	1.8080e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.03	0.01
tblVehicleEF	LHD1	1.5210e-003	1.2070e-003
tblVehicleEF	LHD1	0.03	0.04
tblVehicleEF	LHD1	0.33	0.22

tblVehicleEF	LHD1	0.25	0.12
tblVehicleEF	LHD1	8.6000e-005	8.9000e-005
tblVehicleEF	LHD1	6.0760e-003	5.3890e-003
tblVehicleEF	LHD1	5.6100e-004	2.8000e-004
tblVehicleEF	LHD1	1.9860e-003	1.8080e-003
tblVehicleEF	LHD1	0.06	0.07
tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	1.5210e-003	1.2070e-003
tblVehicleEF	LHD1	0.04	0.05
tblVehicleEF	LHD1	0.33	0.22
tblVehicleEF	LHD1	0.26	0.14
tblVehicleEF	LHD2	1.0510e-003	2.6620e-003
tblVehicleEF	LHD2	4.7010e-003	2.1630e-003
tblVehicleEF	LHD2	8.1870e-003	3.4330e-003
tblVehicleEF	LHD2	0.16	0.12
tblVehicleEF	LHD2	0.36	0.19
tblVehicleEF	LHD2	1.92	0.90
tblVehicleEF	LHD2	8.23	13.47
tblVehicleEF	LHD2	526.21	582.26
tblVehicleEF	LHD2	33.37	22.83
tblVehicleEF	LHD2	7.0730e-003	6.4280e-003
tblVehicleEF	LHD2	0.08	0.07
tblVehicleEF	LHD2	0.63	0.16
tblVehicleEF	LHD2	0.77	0.28
tblVehicleEF	LHD2	8.6000e-004	1.0090e-003
tblVehicleEF	LHD2	0.06	0.09
tblVehicleEF	LHD2	9.7000e-003	0.01
tblVehicleEF	LHD2	8.1050e-003	6.4460e-003
tblVehicleEF	LHD2	2.1400e-004	3.8100e-004
tblVehicleEF	LHD2	7.9100e-004	9.6600e-004

tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	2.4250e-003	2.7000e-003
tblVehicleEF	LHD2	7.4580e-003	6.1540e-003
tblVehicleEF	LHD2	1.9900e-004	3.5100e-004
tblVehicleEF	LHD2	1.1270e-003	6.1700e-004
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	9.0900e-004	4.6000e-004
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	0.18	0.04
tblVehicleEF	LHD2	0.15	0.05
tblVehicleEF	LHD2	9.2000e-005	1.3100e-004
tblVehicleEF	LHD2	5.7420e-003	5.6600e-003
tblVehicleEF	LHD2	4.0500e-004	2.4300e-004
tblVehicleEF	LHD2	1.1270e-003	6.1700e-004
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	9.0900e-004	4.6000e-004
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.18	0.04
tblVehicleEF	LHD2	0.16	0.05
tblVehicleEF	MCY	0.00	0.56
tblVehicleEF	MCY	0.00	0.14
tblVehicleEF	MCY	18.00	17.95
tblVehicleEF	MCY	10.16	9.79
tblVehicleEF	MCY	144.16	192.36
tblVehicleEF	MCY	36.52	42.19
tblVehicleEF	MCY	3.8880e-003	5.2680e-003
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	0.30	0.31

tblVehicleEF	MCY	0.04	0.01
tblVehicleEF	MCY	8.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.2600e-004	2.6960e-003
tblVehicleEF	MCY	6.7800e-004	3.3480e-003
tblVehicleEF	MCY	0.02	5.0400e-003
tblVehicleEF	MCY	2.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.9600e-004	2.5140e-003
tblVehicleEF	MCY	5.9200e-004	3.1290e-003
tblVehicleEF	MCY	0.90	1.05
tblVehicleEF	MCY	0.38	0.57
tblVehicleEF	MCY	0.52	0.62
tblVehicleEF	MCY	2.29	2.56
tblVehicleEF	MCY	1.11	0.47
tblVehicleEF	MCY	2.02	1.97
tblVehicleEF	MCY	1.9560e-003	2.2960e-003
tblVehicleEF	MCY	6.2900e-004	6.4000e-004
tblVehicleEF	MCY	0.90	1.05
tblVehicleEF	MCY	0.38	0.57
tblVehicleEF	MCY	0.52	0.62
tblVehicleEF	MCY	2.52	3.22
tblVehicleEF	MCY	1.11	0.47
tblVehicleEF	MCY	2.17	2.15
tblVehicleEF	MDV	0.02	6.3250e-003
tblVehicleEF	MDV	9.3950e-003	5.4660e-003
tblVehicleEF	MDV	1.16	0.75
tblVehicleEF	MDV	2.17	1.20
tblVehicleEF	MDV	468.58	401.69
tblVehicleEF	MDV	93.95	80.08
tblVehicleEF	MDV	0.13	0.12
tblVehicleEF	MDV	0.13	0.07

tblVehicleEF	MDV	0.18	0.09
tblVehicleEF	MDV	2.4270e-003	1.7870e-003
tblVehicleEF	MDV	4.4780e-003	2.0420e-003
tblVehicleEF	MDV	2.2520e-003	1.6460e-003
tblVehicleEF	MDV	4.1550e-003	1.8770e-003
tblVehicleEF	MDV	0.09	0.05
tblVehicleEF	MDV	0.19	0.11
tblVehicleEF	MDV	0.10	0.06
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.55	0.07
tblVehicleEF	MDV	0.17	0.07
tblVehicleEF	MDV	6.5100e-003	4.0180e-003
tblVehicleEF	MDV	1.3230e-003	8.2100e-004
tblVehicleEF	MDV	0.09	0.05
tblVehicleEF	MDV	0.19	0.11
tblVehicleEF	MDV	0.10	0.06
tblVehicleEF	MDV	0.04	0.02
tblVehicleEF	MDV	0.55	0.07
tblVehicleEF	MDV	0.18	0.08
tblVehicleEF	MH	0.00	6.0060e-003
tblVehicleEF	MH	0.00	0.02
tblVehicleEF	MH	0.25	0.34
tblVehicleEF	MH	4.15	3.45
tblVehicleEF	MH	613.93	1,105.54
tblVehicleEF	MH	28.95	57.38
tblVehicleEF	MH	2.1430e-003	8.1400e-004
tblVehicleEF	MH	0.61	0.66
tblVehicleEF	MH	0.54	0.57
tblVehicleEF	MH	0.05	0.13
tblVehicleEF	MH	8.4550e-003	0.01

tblVehicleEF	MH	8.4230e-003	8.9220e-003
tblVehicleEF	MH	2.2300e-004	8.3700e-004
tblVehicleEF	MH	0.02	0.06
tblVehicleEF	MH	2.1140e-003	3.2140e-003
tblVehicleEF	MH	7.7500e-003	8.5000e-003
tblVehicleEF	MH	2.0700e-004	7.7000e-004
tblVehicleEF	MH	0.43	0.45
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.73	8.1090e-003
tblVehicleEF	MH	0.22	0.20
tblVehicleEF	MH	6.7550e-003	0.01
tblVehicleEF	MH	3.9300e-004	6.3400e-004
tblVehicleEF	MH	0.43	0.45
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.73	8.1090e-003
tblVehicleEF	MH	0.24	0.22
tblVehicleEF	MHD	3.2390e-003	2.2770e-003
tblVehicleEF	MHD	0.38	0.21
tblVehicleEF	MHD	919.01	1,122.44
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.83	0.69
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.03	2.8360e-003
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.8000e-003	3.0000e-003

tblVehicleEF	MHD	0.03	2.7080e-003
tblVehicleEF	MHD	0.07	0.03
tblVehicleEF	MHD	0.33	0.01
tblVehicleEF	MHD	9.7980e-003	0.01
tblVehicleEF	MHD	0.09	0.04
tblVehicleEF	MHD	0.33	0.01
tblVehicleEF	OBUS	2.9950e-003	3.6290e-003
tblVehicleEF	OBUS	0.58	0.29
tblVehicleEF	OBUS	1,052.70	1,230.26
tblVehicleEF	OBUS	2.7880e-003	2.6430e-003
tblVehicleEF	OBUS	1.10	0.65
tblVehicleEF	OBUS	0.10	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	2.8400e-003
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	2.6860e-003	3.0000e-003
tblVehicleEF	OBUS	0.04	2.6990e-003
tblVehicleEF	OBUS	0.10	0.04
tblVehicleEF	OBUS	0.31	0.04
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.12	0.04
tblVehicleEF	OBUS	0.31	0.04
tblVehicleEF	SBUS	6.5080e-003	0.81
tblVehicleEF	SBUS	8.3150e-003	5.5520e-003
tblVehicleEF	SBUS	0.00	0.05
tblVehicleEF	SBUS	1.65	17.34
tblVehicleEF	SBUS	1.36	0.36
tblVehicleEF	SBUS	16.08	12.17
tblVehicleEF	SBUS	570.74	1,829.41
tblVehicleEF	SBUS	1,031.10	1,015.81

tblVehicleEF	SBUS	115.30	120.98
tblVehicleEF	SBUS	5.0800e-004	6.9900e-004
tblVehicleEF	SBUS	5.36	7.56
tblVehicleEF	SBUS	4.62	1.72
tblVehicleEF	SBUS	1.49	7.91
tblVehicleEF	SBUS	8.6910e-003	3.8180e-003
tblVehicleEF	SBUS	0.56	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	8.7680e-003
tblVehicleEF	SBUS	1.5380e-003	2.1350e-003
tblVehicleEF	SBUS	7.9950e-003	3.6530e-003
tblVehicleEF	SBUS	0.24	0.32
tblVehicleEF	SBUS	2.7400e-003	2.6000e-003
tblVehicleEF	SBUS	0.04	8.3690e-003
tblVehicleEF	SBUS	1.4270e-003	1.9630e-003
tblVehicleEF	SBUS	0.02	7.7030e-003
tblVehicleEF	SBUS	0.18	0.06
tblVehicleEF	SBUS	0.14	2.06
tblVehicleEF	SBUS	9.3890e-003	4.5900e-003
tblVehicleEF	SBUS	0.23	0.06
tblVehicleEF	SBUS	1.74	0.02
tblVehicleEF	SBUS	1.01	0.67
tblVehicleEF	SBUS	6.0500e-003	0.02
tblVehicleEF	SBUS	0.01	9.8070e-003
tblVehicleEF	SBUS	1.5630e-003	1.4210e-003
tblVehicleEF	SBUS	0.02	7.7030e-003
tblVehicleEF	SBUS	0.18	0.06
tblVehicleEF	SBUS	0.16	2.99
tblVehicleEF	SBUS	9.3890e-003	4.5900e-003
tblVehicleEF	SBUS	0.26	0.07

tblVehicleEF	SBUS	1.74	0.02
tblVehicleEF	SBUS	1.08	0.73
tblVehicleEF	UBUS	0.00	1.62
tblVehicleEF	UBUS	0.00	0.05
tblVehicleEF	UBUS	2.48	6.83
tblVehicleEF	UBUS	5.30	8.08
tblVehicleEF	UBUS	1,918.79	1,802.66
tblVehicleEF	UBUS	19.75	125.59
tblVehicleEF	UBUS	3.2720e-003	1.7310e-003
tblVehicleEF	UBUS	8.07	3.98
tblVehicleEF	UBUS	0.79	1.27
tblVehicleEF	UBUS	0.72	0.54
tblVehicleEF	UBUS	8.0000e-003	0.01
tblVehicleEF	UBUS	0.15	0.05
tblVehicleEF	UBUS	2.1700e-004	1.3650e-003
tblVehicleEF	UBUS	0.31	0.23
tblVehicleEF	UBUS	2.0000e-003	3.0000e-003
tblVehicleEF	UBUS	0.14	0.04
tblVehicleEF	UBUS	2.0100e-004	1.2550e-003
tblVehicleEF	UBUS	2.7160e-003	3.5940e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.6680e-003	2.5570e-003
tblVehicleEF	UBUS	0.41	0.31
tblVehicleEF	UBUS	0.46	0.02
tblVehicleEF	UBUS	0.43	0.70
tblVehicleEF	UBUS	0.02	8.4950e-003
tblVehicleEF	UBUS	3.1600e-004	1.4040e-003
tblVehicleEF	UBUS	2.7160e-003	3.5940e-003
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	1.6680e-003	2.5570e-003

tblVehicleEF	UBUS	0.46	1.97
tblVehicleEF	UBUS	0.46	0.02
tblVehicleEF	UBUS	0.45	0.77
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	ST_TR	2.49	1.73
tblVehicleTrips	ST_TR	1.64	1.18
tblVehicleTrips	SU_TR	0.73	0.51
tblVehicleTrips	SU_TR	0.76	0.55
tblVehicleTrips	WD_TR	6.96	4.85
tblVehicleTrips	WD_TR	11.42	8.24
tblWater	IndoorWaterUseRate	531,875,000.00	74,507,662.00
tblWater	IndoorWaterUseRate	195,507,122.79	27,387,581.00
tblWater	OutdoorWaterUseRate	119,826,946.23	224,547,720.00

2.0 Emissions Summary

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Energy											0.0000	9,095.1964	9,095.1964	0.5938	0.1501	9,154.1932
Mobile											0.0000	23,340.3999	23,340.3999	0.9049	0.0000	23,359.4037
Waste											5,813.8642	0.0000	5,813.8642	343.5895	0.0000	13,029.2443
Water											32.3267	649.2294	681.5560	3.3705	0.0888	779.8648
Total											**5,846.1908**	**33,084.9101**	**38,931.1009**	**348.4590**	**0.2389**	**46,322.7949**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Energy											0.0000	9,095.1964	9,095.1964	0.5938	0.1501	9,154.1932
Mobile											0.0000	23,340.3999	23,340.3999	0.9049	0.0000	23,359.4037
Waste											1,453.4660	0.0000	1,453.4660	85.8974	0.0000	3,257.3111
Water											32.3267	649.2294	681.5560	3.3699	0.0887	779.8132

Total											**1,485.7927**	**33,084.9101**	**34,570.7028**	**90.7663**	**0.2388**	**36,550.8102**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.59	0.00	11.20	73.95	0.05	21.10

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	3,540.0000
Vegetation Land Change	-3,397.2030
Total	**142.7970**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Phase	Trenching	1/1/2016	12/31/2015	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Phase				0.00	19.80	7.90				

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	23,340.3999	23,340.3999	0.9049	0.0000	23,359.4037
Unmitigated											0.0000	23,340.3999	23,340.3999	0.9049	0.0000	23,359.4037

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	11,155.00	3,979.00	1173.00	38,968,909	38,968,909
Office Park	9,064.00	1,298.00	605.00	30,203,831	30,203,831
Total	20,219.00	5,277.00	1,778.00	69,172,740	69,172,740

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	12.30	12.30	12.30	59.00	28.00	13.00	100	0	0
Office Park	12.30	12.30	12.30	33.00	48.00	19.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.539325	0.044357	0.212325	0.116769	0.013824	0.006428	0.021462	0.034355	0.002643	0.001731	0.005268	0.000699	0.000814

5.0 Energy Detail

4.4 Fleet Mix

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	tons/yr										MT/yr					
NaturalGas Mitigated											0.0000	1,895.3224	1,895.3224	0.0363	0.0348	1,906.8570
NaturalGas Unmitigated											0.0000	1,895.3224	1,895.3224	0.0363	0.0348	1,906.8570
Electricity Mitigated											0.0000	7,199.8741	7,199.8741	0.5575	0.1153	7,247.3362
Electricity Unmitigated											0.0000	7,199.8741	7,199.8741	0.5575	0.1153	7,247.3362

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.576e+007											0.0000	1,374.6517	1,374.6517	0.0264	0.0252	1,383.0176
Office Park	9.757e+006											0.0000	520.6707	520.6707	9.9800e-003	9.5500e-003	523.8394
Total												**0.0000**	**1,895.3224**	**1,895.3224**	**0.0363**	**0.0348**	**1,906.8570**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.576e+007											0.0000	1,374.6517	1,374.6517	0.0264	0.0252	1,383.0176
Office Park	9.757e+006											0.0000	520.6707	520.6707	9.9800e-003	9.5500e-003	523.8394
Total												**0.0000**	**1,895.3224**	**1,895.3224**	**0.0363**	**0.0348**	**1,906.8570**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	2.6243e+007	4,458.3835	0.3452	0.0714	4,487.7736

Office Park	1.6137e+007	2,741.4905	0.2123	0.0439	2,759.5626
Total		**7,199.8740**	**0.5575**	**0.1153**	**7,247.3362**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	2.6243e+007	4,458.3835	0.3452	0.0714	4,487.7736
Office Park	1.6137e+007	2,741.4905	0.2123	0.0439	2,759.5626
Total		**7,199.8740**	**0.5575**	**0.1153**	**7,247.3362**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Unmitigated											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Total											**0.0000**	**0.0844**	**0.0844**	**2.2000e-004**	**0.0000**	**0.0890**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	0.0844	0.0844	2.2000e-004	0.0000	0.0890
Total											**0.0000**	**0.0844**	**0.0844**	**2.2000e-004**	**0.0000**	**0.0890**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	681.5560	3.3705	0.0888	779.8648
Mitigated	681.5560	3.3699	0.0887	779.8132

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	74.5077 / 0	188.4576	2.4406	0.0600	258.2998
Office Park	27.3876 / 224.548	493.0985	0.9299	0.0288	521.5650
Total		**681.5560**	**3.3705**	**0.0888**	**779.8648**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	74.5077 / 0	188.4576	2.4402	0.0599	258.2621
Office Park	27.3876 / 224.548	493.0985	0.9298	0.0288	521.5511

Total		681.5560	3.3699	0.0887	779.8132

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,453.4660	85.8974	0.0000	3,257.3111
Unmitigated	5,813.8642	343.5895	0.0000	13,029.244 3

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	19375	3,932.9499	232.4307	0.0000	8,813.994 2
Office Park	9266	1,880.9143	111.1589	0.0000	4,215.250 1
Total		**5,813.8642**	**343.5895**	**0.0000**	**13,029.24 43**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	4843.75	983.2375	58.1077	0.0000	2,203.4986
Office Park	2316.5	470.2286	27.7897	0.0000	1,053.8125
Total		**1,453.4661**	**85.8974**	**0.0000**	**3,257.3111**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	142.7970	0.0000	0.0000	142.7970

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	86 / 0	-533.2000	0.0000	0.0000	-533.2000
Grassland	63.3 / 0	-272.8230	0.0000	0.0000	-272.8230
Scrub	37.6 / 0	-537.6800	0.0000	0.0000	-537.6800
Trees	18.5 / 0	-2,053.5000	0.0000	0.0000	-2,053.5000
Wetlands	0.6 / 0	0.0000	0.0000	0.0000	0.0000
Total		**-3,397.2030**	**0.0000**	**0.0000**	**-3,397.2030**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	5000	3,540.0000	0.0000	0.0000	3,540.0000
Total		**3,540.0000**	**0.0000**	**0.0000**	**3,540.0000**

APPENDIX C
CONSOL RESIDENTIAL AND COMMERCIAL BUILDING ANALYSIS REPORT

Prepared For:
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Valencia, California 91355

Newhall Land & Farming Company
RESIDENTIAL AND COMMERCIAL BUILDING ANALYSIS

at

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September 2016

Executive Summary

This report estimates and identifies energy savings related to energy efficiency and renewable energy options for new residential and commercial construction. The energy uses considered are those regulated by the California Building Energy Efficiency Standards (California Energy Code) (Title 24, Part 6 of the California Code of Regulations), as well as those that are not regulated by Title 24 but are part of the total energy profile of residential and commercial buildings. Annual site energy savings (kWh and therms) and Time Dependent Valuation (TDV) energy savings were determined using energy modeling software. The photovoltaic (PV) systems for the residential and commercial building prototypes analyzed in this report were sized to offset the electrical and natural gas consumption in accordance with the California Energy Commission's (CEC) TDV-Based Zero Net Energy (ZNE) definition.

Two **residential building prototypes** were considered in the analysis:

- 2,700 square foot, two-story single-family home
- 6,960 square foot, two-story multifamily building (8-plex)

Three **non-residential building prototypes** were considered in the analysis:

- 100,000 square foot, four-story office building
- 75,000 square foot, one-story light industrial building (20,000 square feet conditioned)
- 40,000 square foot, one-story suburban retail building

The report presents information regarding the energy use of the building prototypes relative to multiple iterations of the California Energy Code (Title 24), as well as relative to the CEC's ZNE definitional parameters. Further, while the report presents a ZNE-compliant design pathway for each of the building prototypes, it is anticipated that additional annual site energy savings will occur as the result of more advanced building energy efficiency standards that: (i) become requirements imposed in future editions of the Title 24 Standards, and/or (ii) become standard practice as residential and commercial building technologies evolve.

Zero Net Energy Definition

This analysis used the CEC's definition of ZNE, which is based on TDV Energy.[1] TDV Energy assigns multipliers to gas and electric demand for every hour of the year. The natural gas multipliers have virtually no variation, while the electricity multipliers can vary dramatically over the course of a day, month, or year. The multipliers are designed to more accurately reflect the resource cost to the utility and society for peak electricity generation, transmission, and distribution, and are highest at periods of peak demand.

As the amount of PV energy generation has grown, the TDV peak has shifted to later in the afternoon, when PV production declines but demand for air conditioning remains high.[2] Measures that produce or reduce energy at periods of high electricity demand are rewarded by the TDV-based approach to ZNE. The units for "TDV energy," as used throughout this report, are "kTDV/sq. ft./year," which can also be written as "TDV

1 See CEC, *2015 Integrated Energy Policy Report* (2015), p. 41.

2 For more detail on TDV multipliers, please see Energy + Environmental Economics, *Time Dependent Valuation of Energy for Developing Building Efficiency Standards* (July 2014), available at: http://www.energy.ca.gov/title24/2016standards/prerulemaking/documents/2014-07-09_workshop/2017_TDV_Documents/.

kBTU/sq. ft./year." These units are used interchangeably throughout the CEC's relevant compliance tools and documentation.

New Residential Construction

Methods and Assumptions

All residential buildings are assumed to be in Climate Zone 9 (Santa Clarita/Los Angeles County), and the analysis focuses on feasible, cost-effective design and product selections most likely to be adopted by builders.

Energy modeling was conducted using the CEC's public domain building energy simulation and compliance software, known as "California Building Energy Code Compliance" software (CBECC-res). The single-family and multifamily building energy models used in this analysis are based on prototypical models developed by the CEC. ConSol modified the models to represent known builder preferences and practices.

For the single-family home and multifamily prototypes, ConSol determined annual site energy savings (kWh and therms) resulting from changes to the California Energy Code between 2005 and 2016. ConSol also developed a model for each residential building prototype, whereby each prototype exceeds the 2016 code by just over 10%, which serves as a proxy for the 2019 code. Building energy loads in each model are categorized as "regulated" loads, which include only the end-uses regulated by Title 24, Part 6: space heating, space cooling, and water heating. Additional data in each model is provided for "unregulated" loads, as shown in Table 1 and Table 2.

Although appliance efficiency is technically regulated by California's Title 20 Standards, as of today, it is not possible to gain compliance credit or to trade-off improved appliance efficiency with other measures. Similarly, lighting is regulated by Title 24, but it is not a presently changeable variable within the compliance software, so it presently is characterized as an unregulated load. However, recent updates to the assumptions within CBECC reflect dramatic lighting energy use savings, as well as more modest appliance energy use savings, which are shown in the "Unregulated Loads" portions of Table 1 and Table 2. When ZNE becomes a requirement for all new residential construction, both "regulated" and "unregulated" building loads will be included in the compliance calculation, and it may be possible to trade lighting and appliance efficiency with other efficiency measures and/or PV.

The most recent iteration of CBECC-res, version 2016.2.0 (857), allows users to begin balancing both regulated and unregulated loads against PV generation, in order to demonstrate that a residential building has reached ZNE on a TDV-basis. CBECC software currently uses the Energy Design Rating (EDR) to represent annual TDV energy consumption for both regulated and unregulated building loads. Likewise, CBECC-res software now enables users to model PV generation, which is also output as an EDR value.

<table>
<tr><th colspan="4">ENERGY DESIGN RATING</th></tr>
<tr><td colspan="4">Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC). A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to"zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).

As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen</td></tr>
<tr><td>EDR of Standard Design</td><td>EDR of Proposed Design</td><td>EDR Value of Proposed PV</td><td>Final EDR of Proposed Design</td></tr>
<tr><td>62.4</td><td>59.9</td><td>60.0</td><td>-0.1</td></tr>
</table>

Figure 1: Description of EDR and Output for a ZNE Residential Building

By sizing a PV system to generate greater annual EDR than the residential building consumes, the user can approximate a building that will meet the CEC's ZNE definition. As shown in Figure 1, the EDR of the

PV system slightly exceeds the EDR of the Proposed Design. (The CEC has not yet developed compliance software or published a method for demonstrating ZNE using EDR, so TDV values are also provided as an alternative method to demonstrate ZNE, as shown in Table 1 and Table 2.)

Savings Resulting From Past, Present, and Projected Code Changes

Table 1 provides estimates of annual site energy consumption for the single-family home prototype and Table 2 provides estimates for the multifamily building prototype. The first two columns in each table represent buildings designed to meet the 2005 and 2016 code, respectively. The third column represents buildings designed to exceed the 2016 code by 10% prior to the addition of solar PV necessary to reach ZNE, which serves as a proxy for 2019 code.

Table 1
Site and TDV Energy Use in 2005, 2016, and ZNE for a Single-Family Home in Climate Zone 9

Newhall Land Co. - Code Review Santa Clarita Climate Zone 09 2700 Sqft / 2-Story / 20% Glazing / 4 Occupants	2005 Code-Compliant Building	2016 Code-Compliant Building	2019 Title 24 Building Features (Approximated)
Software	CBECC-RES 2013-4 (744)	CBECC-RES 2016.2.0 (857)	CBECC-RES 2016.2.0 (857)
Regulated Loads from CBECC Log file (Space Heating, Cooling & Water Heating)			
kWh	1,850	879	1,877
Therms	377	205	74
Unregulated Loads from CBECC Log File (Inside & Exterior Lighting, Appliance & Cook, Plug Loads)			
Interior Lighting kWh	1,300	616	616
Appliance & Cooking kWh	2,195	1,873	1,862
Plug Load kWh	2,630	2,371	2,371
Exterior Lighting kWh	161	152	152
Appliance & Cooking Therms	20	15	15
Total Regulated and Unregulated Loads			
Total kWh	8,136	5,891	6,878
Total Therms	397	220	89
PV Sizing to Achieve ZNE			5.0 kW
PV Production kWH			8,167
Proposed Design EDR			47.18
PV Production EDR			47.83
Proposed Design TDV			69.92
PV Production TDV			70.88

3 "TDV" as used in the table and elsewhere in the report represents kTDV/sq. ft./year.

Table 2
Site and TDV Energy Use in 2005, 2016, and ZNE in a Multifamily 8-plex in Climate Zone 9

Newhall Land Co. - Code Review Santa Clarita Climate Zone 09 8-Plex (6,960 Sqft) / 2-Story / 15% Glazing / 2 Occupants	2005 Code-Compliant Building	2016 Code-Compliant Building	2019 Title 24 Building Features (Approximated)
Software	CBECC-RES 2013-4 (744)	CBECC-RES 2016.2.0 (857)	CBECC-RES 2016.2.0 (857)
Regulated Loads from CBECC Log file (Space Heating, Cooling & Water Heating)			
kWh	9,202	3,996	9,085
Therms	1,108	697	31
Unregulated Loads from CBECC Log File (Inside & Exterior Lighting, Appliance & Cook, Plug Loads)			
Interior Lighting kWh	4,172	2,034	2,034
Appliance & Cooking kWh	11,544	10,780	10,781
Plug Load kWh	10,701	12,062	12,062
Exterior Lighting kWh	479	434	434
Appliance & Cooking Therms	118	96	96
Total Regulated and Unregulated Loads			
Total kWh	36,097	29,305	34,395
Total Therms	1,226	792	127
kWh per unit	4,512	3,663	4,299
Therms per unit	153	99	16
PV Sizing to Achieve ZNE			21.9 kW
PV Production kWH			35,772
Proposed Design EDR			59.92
PV Production EDR			60.05
Proposed Design TDV			120.19
PV Production TDV			120.44

Meeting 2019 Residential Building Energy Standards (ZNE)

ConSol assessed how builders will meet the 2019 Building Energy Efficiency Standards[4] and sized the PV systems to reach ZNE, in accordance with the CEC's goal for residential buildings.

During the last adoption cycle for the California Energy Code (2016), the CEC made aggressive changes to the Title 24 standards and it is unlikely that there will be substantial changes to energy efficiency requirements for 2019—instead, the transition will be focused on integrating PV. ConSol assumed that the 2019 code will include a relatively modest 10% improvement to energy efficiency before allowing the addition of PV to achieve ZNE. This assumption is based on the fact that changes to Title 24 must meet cost effectiveness thresholds for adoption, and—once the 2016 code requirements are implemented—there will be very few cost-effective options for energy efficiency improvements. As a result, using PV will likely be the lowest cost pathway to achieve ZNE for residential building types.

In order to achieve the 10% efficiency improvement above 2016 code, ConSol designed the single-family home with more efficient windows (lower U-factor and lower SHGC), a more efficient gas furnace, a more efficient air conditioner, and a more efficient water heater. The water heater was switched from a 0.82 EF (Energy Factor) tankless gas unit to a 3.39 EF electric heat pump, resulting in decreased annual therm

4 The 2019 Building Energy Standards are yet to be determined; therefore, ConSol used the best available knowledge and past experience to estimate the 2019 stringency and energy features.

usage and increased kWh usage. These design efficiencies for the single-family building prototype resulted in a net TDV energy decrease of over 10%.

ConSol designed the multifamily home with additional roof deck insulation, higher roof reflectance, more efficient windows (lower U-factor and lower SHGC), a more efficient gas furnace, a more efficient air conditioner, and a more efficient water heater. Since the water heater was switched from a 0.82 EF tankless gas unit to a 3.39 EF electric heat pump, annual therm usage again decreased while kWh usage increased. These design efficiencies for the multifamily building prototype also resulted in a net TDV energy decrease of over 10%.

PV Sizing to Achieve ZNE

Once the models for the residential prototypes were updated to represent the likely parameters of the 2019 code (10% better than 2016 code), PV systems were sized to reach ZNE. The most recent version of CBECC-res includes a version of the CEC-PV calculator, which allows users to size PV systems to match annual building consumption. There are limited variables such as "standard" versus "premium" panels and inverters. ConSol used a standard system using California Flexible Installation (CFI)[5] to meet the ZNE requirements.

Through iterative runs, ConSol determined that the two-story, 2,700 square foot single-family home would need an approximately 5.0kW system to reach ZNE in Climate Zone 9, Santa Clarita. The two-story, 6,960 square foot multifamily 8-plex would need an approximately 21.9kW system to reach ZNE in Climate Zone 9, Santa Clarita.

Policy documents, such as the 2015 Integrated Energy Policy Report, point to TDV as the metric that will be used to demonstrate compliance with ZNE in California. As previously discussed, CBECC software now uses EDR as the compliance metric that is output on CF1-R Title 24 compliance forms. The EDR value is based on TDV energy, but has additional ratios, which could cause confusion. In order to definitively demonstrate that the single-family home and multifamily building prototypes are designed to meet ZNE, ConSol has included both the EDR and TDV energy consumption and PV generation, which were acquired from the CBECC log file that is generated with each modeling run.

The EDR value for the Proposed Design for the single-family home prototype is **47.18**, while the EDR of the 5.0 kW PV system is **47.83**, slightly in excess of the annual building energy consumption. Similarly, the TDV energy of the Proposed Design is **69.92**, while the TDV energy of the 5.0 kW PV system is **70.88**, which is again slightly higher than the annual TDV energy consumption.

The EDR value for the Proposed Design for the multifamily building prototype is **59.90**, while the EDR of the 21.9 kW PV system is **60.05**, slightly in excess of the annual building energy consumption. Similarly, the TDV energy of the Proposed Design is **120.19**, while the TDV energy of the 21.9 kW PV system is **120.44**, which is again slightly higher than the annual TDV energy consumption.

5 California Flexible Installation (CFI) was developed to simplify rebate approvals within the NSHP program. Modeling PV using CFI provides an estimate of PV system performance within a range of installation scenarios, as are often found in new subdivisions. CFI can only be used for new construction projects, and it assumes that each PV system can be installed within all of the following criteria: 1) have an azimuth ranging from 150 to 270 degrees, 2) have a tilt corresponding to a roof pitch between 0:12 and 7:12, 3) meet the minimal shading criteria, 4) use the same make, model, and quantity of major system components, and 5) have fixed, nontracking mounting. For more information see: http://www.energy.ca.gov/2013publications/CEC-300-2013-009/CEC-300-2013-009-ED7-CMF.pdf

New Commercial Construction

Methods and Assumptions

All commercial buildings are assumed to be in Climate Zone 9 (Santa Clarita/Los Angeles County), and the analysis focuses on feasible, cost-effective design and product selections most likely to be adopted by builders.

Energy modeling was conducted using EnergyPro 6.8 and Energy Pro 7.1, which is CEC-approved modeling software that can be used for commercial buildings regulated by the California Energy Code. The office, light industrial, and suburban retail building energy models used in this analysis are based on prototypical models.

For the three commercial building prototypes, ConSol determined annual site energy consumption savings (kWh and therms) resulting from changes to the California Energy Code between 2008 and 2016.

Savings Resulting From Code Changes

Table 3 identifies the annual electrical energy consumption (kWh) savings for the three commercial building prototypes resulting from changes to the California Energy Code between 2008 and 2016.

Table 3
2008 to 2016 – Total Electrical Energy Savings

Building Type	Electrical Consumption (kWh)		Electrical Savings (kWh)
	2008 Code-Compliant Building	2016 Code-Compliant Building	2008 Code-Compliant Building to 2016 Code-Compliant Building
100,000 ft^2 4-Story Office Building	999,952	922,690	77,262
75,000 ft^2 Light Industrial Building*	205,979	161,743	44,236
40,000 ft^2 Suburban Retail Building	539,915	423,112	116,803

*Only 20,000 ft^2 is conditioned.

Table 4 identifies the annual natural gas energy consumption (therms) savings for the three building prototypes resulting from changes to the California Energy Code between 2008 and 2016. The recommended electrical energy savings measures resulted in additional natural gas usage for the light industrial building. This is indicated by the negative sign (-) in the therms savings column. The net increase for the light industrial building prototype is a result of the reduced internal heat produced by the lights, which then requires additional space heating.

Table 4
2008 to 2016 – Total Natural Gas Energy Savings

Building Type	Natural Gas Consumption (therms)		Natural Gas Savings (therms)
	2008 Code-Compliant Building	2016 Code-Compliant Building	2008 Code-Compliant Building to 2016 Code-Compliant Building
100,000 ft^2 4-Story Office Building	5,030	4,338	692
75,000 ft^2 Light Industrial Building*	948	971	-23
40,000 ft^2 Suburban Retail Building	4,096	3,183	913

*Only 20,000 ft^2 is conditioned.

Meeting 2019 Commercial Building Energy Standards

Packages of energy efficiency improvements that would be required for the three commercial building prototypes to exceed the 2016 California Energy Code by roughly 15%[6] were created. Based on our professional judgment, it is possible that the 2019 California Energy Code requirements will be 15% above the 2016 California Energy Code requirements; however, based on the last iteration of the Code (2008 to 2013), a smaller incremental improvement was achieved (i.e., approximately 2-18% depending on building prototype).

Although the goal was to target the 15% savings number, current and proposed code constraints, cost effectiveness, and practical options limited the feasibility of the actual measures that could be proposed. The actual savings percentage for each commercial building prototype, therefore, may be less than 15% based on the available energy efficiency improvements.

100,000 Square Foot, Four-Story Office Building

Table 5 shows the incremental energy savings for a package of energy efficiency recommendations for a 100,000 square foot, four-story office building.

Table 5
100,000 Square Foot, Four-Story Office Building (18% above 2016)
Energy Conservation Measures

End Use	ECM	Recommendations	Annual Savings (kWh)	Annual Savings (Therms)
Lighting	**1**	Reduce Lighting Density from 0.75 Watts per Square Foot to 0.60 Watts per Square Foot	114,661	2,491
HVAC	**2**	Install Water Cooled Chilled Water System (0.5 kW/ton) and Heating Hot Water Boiler Versus Packaged Units		
		Total	**114,661**	**2,491**

6 The percent energy savings includes both electricity and natural gas.

The lighting recommendation involves switching from standard fluorescent lighting fixtures to essentially 100% LED lighting fixtures.

The HVAC recommendation involves installing a high efficiency water cooled chiller, cooling tower, air handlers, piping, and distribution pumps versus standard packaged rooftop air conditioning units.

75,000 Square Foot Light Industrial Building

Table 6 shows the incremental energy savings for a package of energy efficiency recommendations for the 75,000 square foot light industrial building.

The recommended electrical energy savings measures resulted in additional natural gas usage. This is indicated by the negative sign (-) in the therms savings column. The net increase for each building prototype is a result of the reduced internal heat produced by the lights, which in turn requires additional gas heating.

Table 6
75,000 Square Foot Light Industrial Building (2% above 2016)
Energy Conservation Measures

End Use	ECM	Recommendations	Annual Savings (kWh)	Annual Savings (Therms)
Lighting	**1**	Reduce Office Area Lighting Density from 0.9 Watts per Square Foot to 0.72 Watts per Square Foot	10,861	-221
		Total	**10,861**	**-221**

The lighting recommendation involves switching from standard fluorescent lighting fixtures to essentially 100% LED lighting fixtures.

40,000 Square Foot Suburban Retail Building

Table 7 shows the incremental energy savings for a package of energy efficiency recommendations for the 40,000 square foot suburban retail building.

The recommended electrical energy savings measures resulted in additional natural gas usage. This is indicated by the negative sign (-) in the therms savings column. The net increase for each building prototype is a result of the reduced internal heat produced by the lights, which in turn requires additional gas heating.

Table 7
40,000 Square Foot Suburban Retail Building (11% above 2016)
Energy Conservation Measures

End Use	ECM	Recommendations	Annual Savings (kWh)	Annual Savings (Therms)
Lighting	**1**	Reduce Lighting Density from 1.2 Watts per Square Foot to 0.96 Watts per Square Foot	61,562	-104
		Total	**61,562**	**-104**

The lighting recommendation involves switching from standard fluorescent lighting fixtures to essentially 100% LED lighting fixtures.

Achieving ZNE For Commercial Buildings Via Photovoltaic Systems

The TDV Energy generated by the EnergyPro 7.1 software for each building prototype was used as the target for PV system design. ConSol used the CECPV Calculator (Version 5.0) to generate TDV Energy output for various PV system sizes. Through iterative runs, ConSol determined the appropriate PV system sizes needed to meet the annual TDV Energy usage for each building prototype.

The panels used for the calculations were 295 watts DC each. The dimensions of each panel is 77.01 x 39.06 x 1.57 inches.

The “baseline” columns for electrical and natural gas energy consumptions shown in Tables 8 through 10 below were calculated using the EnergyPro 7.1 software. The electrical generation of the PV system is greater than the baseline electrical consumption because the PV system is sized to offset the combined TDV impact of the electrical and natural gas consumption shown in these columns. The negative value in the last column indicates that the proposed PV system is generating more TDV Energy than is required by the building.

100,000 Square Foot, Four-Story Office Building

Table 8 shows the size of a PV system necessary to reach ZNE for a 2019-compliant 100,000 square foot, four-story office building. The proposed TDV with PV is not simply the baseline TDV minus the TDV generation because the TDV impacts of the building and PV were analysed hourly, which resulted in the proposed TDV values.

Table 8
100,000 Square Foot, Four-Story Office Building
PV System

PV Sizing	PV Size (kW DC)	Electrical Baseline (kWh)	Natural Gas Baseline (therms)	Electrical Generation (kWh)	TDV Generation (TDV kBtu/sqft/yr)	Baseline TDV (TDV kBtu/sqft/yr)	Proposed TDV w/ Solar (TDV kBtu/sqft/yr)
Zero Net Energy	536.9	808,029	1,847	902,871	215.8	212.0	-2.5

75,000 Square Foot Light Industrial Building

Table 9 shows the size of a PV system necessary reach ZNE for a 2019-compliant 75,000 square foot light industrial building. The proposed TDV with PV is not simply the baseline TDV minus the TDV generation because the TDV impacts of the building and PV were analysed hourly, which resulted in the proposed TDV values.

Table 9
75,000 Square Foot Light Industrial Building
PV System

PV Sizing	PV Size (kW DC)	Electrical Baseline (kWh)	Natural Gas Baseline (therms)	Electrical Generation (kWh)	TDV Generation (TDV kBtu/sqft/yr)	Baseline TDV (TDV kBtu/sqft/yr)	Proposed TDV w/ Solar (TDV kBtu/sqft/yr)
Zero Net Energy	126.6	150,882	1,192	199,604	231.1	228.1	-0.3

40,000 Square Foot Suburban Retail Building

Table 10 shows the size of a PV system necessary to reach ZNE for a 2019-compliant 40,000 square foot suburban retail building. The proposed TDV with PV is not simply the baseline TDV minus the TDV generation because the TDV impacts of the building and PV were analysed hourly, which resulted in the proposed TDV values.

Table 10
40,000 Square Foot Suburban Retail Building
PV System

PV Sizing	PV Size (kW DC)	Electrical Baseline (kWh)	Natural Gas Baseline (therms)	Electrical Generation (kWh)	TDV Generation (TDV kBtu/sqft/yr)	Baseline TDV (TDV kBtu/sqft/yr)	Proposed TDV w/ Solar (TDV kBtu/sqft/yr)
Zero Net Energy	299.1	361,550	3,287	486,764	283.7	273.6	-7.4

APPENDIX D
STANTEC TRIP RATE AND TRIP LENGTH ESTIMATES

SCVCTM Buildout -Entrada South LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	428.00 DU	81	239	320	275	159	434	4238
4.	Condominium/Townhouse	1297.00 DU	130	622	752	610	336	946	10376
11.	Commercial Center(10-30a)	188.00 TSF	137	89	226	447	485	932	10164
14.	Hotel	286.00 ROOM	97	63	160	92	83	175	2354
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	63.00 TSF	97	12	109	13	81	94	729
51.	Developed Park	10.50 AC	0	0	0	0	0	0	27
	TOTAL		737	1175	1912	1497	1212	2709	28976

SCVCTM Buildout -Entrada South LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
3.	Single Family (6-10du/ac)	428.00 DU	P's	932	636	1143	85	466	3262	
			A's	0	1	424	85	466	976	4238
4.	Condominium/Townhouse	1297.00 DU	P's	2075	1764	3527	207	935	8508	
			A's	0	0	726	207	935	1868	10376
11.	Commercial Center(10-30a)	188.00 TSF	P's	0	0	2	304	2541	2847	
			A's	914	2034	1524	304	2541	7317	10164
14.	Hotel	286.00 ROOM	P's	0	0	0	141	424	565	
			A's	282	0	942	141	424	1789	2354
20.	Elementary/Middle School	750.00 STU	P's	0	0	0	0	33	33	
			A's	109	630	283	0	33	1055	1088
40.	Commercial Office	63.00 TSF	P's	0	0	0	80	131	211	
			A's	198	0	109	80	131	518	729
51.	Developed Park	10.50 AC	P's	0	0	0	0	3	3	
			A's	0	0	21	0	3	24	27
	TOTAL		P's	3007	2400	4672	817	4533	15429	
			A's	1503	2665	4029	817	4533	13547	28976

SCVCTM Buildout -NRSP LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
2.	Single Family (1-5du/ac)	81.00	DU	16	46	62	52	30	82	802
3.	Single Family (6-10du/ac)	8235.00	DU	1565	4613	6178	5268	3047	8315	81526
4.	Condominium/Townhouse	11201.00	DU	1125	5378	6503	5263	2917	8180	89608
11.	Commercial Center(10-30a)	3247.00	TSF	2371	1527	3898	7728	8377	16105	175533
14.	Hotel	143.00	ROOM	49	31	80	46	41	87	1177
20.	Elementary/Middle School	4500.00	STU	1170	900	2070	360	406	766	6526
21.	High School	2500.00	STU	800	350	1150	150	225	375	4475
24.	Library	36.00	TSF	27	11	38	122	133	255	3059
30.	Industrial Park	756.00	TSF	416	76	492	98	393	491	4536
31.	Business Park	324.00	TSF	388	74	462	97	321	418	3304
34.	Utilities	133.00	TSF	0	0	0	0	0	0	317
40.	Commercial Office	1023.00	TSF	1587	194	1781	215	1320	1535	11825
50.	Golf Course	180.00	AC	27	11	38	18	36	54	1433
51.	Developed Park	100.40	AC	0	0	0	3	4	7	261
	TOTAL			9541	13211	22752	19420	17250	36670	384382

SCVCTM Buildout -NRSP LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
2.	Single Family (1-5du/ac)	81.00 DU	P's	176	120	216	16	89	617	
			A's	0	0	80	16	89	185	802
3.	Single Family (6-10du/ac)	8235.00 DU	P's	17935	12228	22020	1628	8968	62779	
			A's	0	0	8151	1628	8968	18747	81526
4.	Condominium/Townhouse	11201.00 DU	P's	17918	15234	30466	1796	8063	73477	
			A's	0	0	6272	1796	8063	16131	89608
11.	Commercial Center(10-30a)	3247.00 TSF	P's	0	0	0	5265	43883	49148	
			A's	15798	35110	26329	5265	43883	126385	175533
14.	Hotel	143.00 ROOM	P's	0	0	0	71	212	283	
			A's	141	0	470	71	212	894	1177
20.	Elementary/Middle School	4500.00 STU	P's	0	0	0	0	196	196	
			A's	654	3784	1696	0	196	6330	6526
21.	High School	2500.00 STU	P's	0	0	0	0	134	134	
			A's	448	1790	1969	0	134	4341	4475
24.	Library	36.00 TSF	P's	0	0	0	275	520	795	
			A's	489	0	980	275	520	2264	3059
30.	Industrial Park	756.00 TSF	P's	0	0	0	318	953	1271	
			A's	1767	0	227	318	953	3265	4536
31.	Business Park	324.00 TSF	P's	0	0	0	232	694	926	
			A's	1287	0	165	232	694	2378	3304
34.	Utilities	133.00 TSF	P's	0	0	0	28	53	81	
			A's	60	0	95	28	53	236	317
40.	Commercial Office	1023.00 TSF	P's	0	0	0	1300	2128	3428	
			A's	3195	0	1774	1300	2128	8397	11825
50.	Golf Course	180.00 AC	P's	0	0	0	0	387	387	
			A's	115	0	544	0	387	1046	1433
51.	Developed Park	100.40 AC	P's	0	0	0	0	32	32	
			A's	2	0	195	0	32	229	261
	TOTAL		P's	36029	27582	52702	10929	66312	193554	
			A's	23956	40684	48947	10929	66312	190828	384382

SCVCTM Buildout -VCC LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
30. Industrial Park	2300.00 TSF	1264	229	1493	299	1195	1494	13800
31. Business Park	1100.00 TSF	1320	254	1574	330	1090	1420	11220
TOTAL		2584	483	3067	629	2285	2914	25020

SCVCTM Buildout -VCC LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
30. Industrial Park	2300.00 TSF	P's	0	0	0	966	2897	3863	
		A's	5384	0	690	966	2897	9937	13800
31. Business Park	1100.00 TSF	P's	0	0	0	786	2356	3142	
		A's	4374	0	562	786	2356	8078	11220
TOTAL		P's	0	0	0	1752	5253	7005	
		A's	9758	0	1252	1752	5253	18015	25020

NL & Lennar Westside Area

	Average Productions & Attractions Trip Lengths by Purpose			Average Productions Only Trip Lengths by Purpose			Average Attractions Only Trip Lengths by Purpose		
	Total Trips	Ave. Trip Length	VMT	Total Trips	Ave. Trip Length	VMT	Total Trips	Ave. Trip Length	VMT
Home-to-Work	95232	13.526	1288108.032	44708	**10.696**	478196.768	50524	16.030	809911.264
Home-to-Shopping	70074	9.834	689107.716	37002	**5.179**	191633.358	33072	15.042	497474.358
Home-to-Other	114224	9.314	1063882.336	72555	**7.04**	510787.2	41669	13.274	553095.136
Other-to-Work	37795	9.803	370504.385	22357	8.906	199111.442	15438	11.102	171392.943
Other-to-Other	175400	8.686	1523524.4	111078	7.62	846414.36	64322	10.527	677110.04

NOTE: Geographic area is larger than RMDP/SCP area - do not use trip or VMT totals as project totals
source: SCVCTM run Nov. 1 2007

APPENDIX E
FEHR & PEERS TRANSPORTATION DEMAND MANAGEMENT PROGRAM TECHINCAL MEMORANDUM

TECHNICAL MEMORANDUM

Date: September 7, 2016

To: Eric Lu, Ramboll Environ

From: Tom Gaul & Chelsea Richer, Fehr & Peers

Subject: ***RMDP/SCP Project: Transportation Demand Management Plan Evaluation***

Ref: LA16-2810

This technical memorandum presents an evaluation of the recommended Transportation Demand Management (TDM) Plan for the Resource Management & Development Plan and Spineflower Conservation Plan (RMDP/SCP) Project, which would facilitate development within three planning areas (i.e., Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas). The recommended TDM Plan is included in the attachment to this document.

1. INTRODUCTION

The recommended TDM Plan contains a set of strategies designed to maximize vehicle miles traveled (VMT) reduction opportunities within the facilitated development areas of the RMDP/SCP Project, taking into account the Project location and the types of land uses that would be facilitated by the Project. The estimated VMT reductions for each strategy presented in the TDM Plan are based on research presented in the California Air Pollution Control Officers Association's (CAPCOA) 2010 report.[1] For certain strategies, reference also is made to research conducted by Fehr & Peers beyond the estimates provided by the CAPCOA report. The remainder of this technical memorandum is organized as follows:

- Section 2 provides an overview of the recommended TDM Plan, including a list of the strategies contained in the recommended TDM Plan.
- Section 3 provides information about the overall methodology used to estimate the VMT reduction potential associated with each strategy.
- Section 4 provides a detailed description of and estimated VMT reductions for each of the strategies contained within the recommended TDM Plan.
- Section 5 provides a summary of the overall estimated VMT reduction associated with the strategies contained within the recommended TDM Plan.

[1]California Air Pollution Control Officers Association. *Quantifying Greenhouse Gas Mitigation Measures-A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, 2010. The CAPCOA report is herein incorporated by reference pursuant to CEQA Guidelines, section 15150.

- Appendix: TDM Strategy Examples provides a listing of examples of TDM strategies implemented in other areas of the state, with applicable internet source references.

- Attachments includes the following documents: Newhall Ranch Transportation Demand Management Plan (September 2016); Exhibit 1, CAPCOA Chart 6-2, Transportation Strategies Organization; Exhibit 2, Conceptual Transit Plan; Exhibit 3, Conceptual Large Mobility Hub Plan; Exhibit 4, Conceptual Small Mobility Hub Plan; Table 1, Strategies in the Recommended TDM Plan for the RMDP/SCP Project; and Table 2, Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project.

2. OVERVIEW OF THE RECOMMENDED TDM PLAN

The following strategies are included in the recommended TDM Plan:

1. Integrate Affordable and Below Market Rate Housing
2. Pedestrian Network
3. Traffic Calming
4. Transit Network Expansion
5. Alternative Work Schedules and Telecommute Program (Residential End)
6. Required Commute Trip Reduction Program
7. Alternative Work Schedules and Telecommute Program (Work End)
8. School Bus Program
9. Transit Fare Subsidy for Employees
10. Carshare Program
11. Neighborhood Electric Vehicle (NEV) Strategy
12. Mobility Hubs
13. Tech-Enabled Mobility
14. Bikeshare Program
15. Transit Fare Subsidy for Below Market Rate Housing Residents

The implementation of the TDM Plan would be, in part, accomplished through the creation of a Transportation Management Organization (TMO) or equivalent management entity, the formation of which is a pre-requisite to achievement of some of the VMT reduction estimates identified herein.

3. METHODOLOGY

The 2010 CAPCOA report, titled *Quantifying Greenhouse Gas Mitigation Measures*, is a primary resource to the assessment of quantifiable greenhouse gas emission reduction benefits. CAPCOA's research focuses on strategies to reduce greenhouse gas emissions at the project level, primarily in terms of land use, transportation, and energy use. The transportation component bases the emission reduction benefits on estimated reductions in VMT. These strategy-specific VMT reduction estimates were applied to the TDM strategies included in Section 4 below.

For each strategy, the CAPCOA report provides a discussion of the relevant literature, as well as a guideline for estimating the VMT reduction resulting from each individual strategy. The recommended guidelines for estimating VMT reduction were developed from relevant research and case studies. Section 4 below summarizes the particular methodology used to estimate the specific VMT reduction for each of the strategies included in the recommended TDM Plan.

For three strategies (Strategies 12, 13 and 14 below), there was no methodology available for estimating VMT reduction using the CAPCOA report, due to research limitations at the time the CAPCOA report was published. Therefore, VMT reduction estimates were derived from research conducted by Fehr & Peers, using professional engineering judgement and based on experience working on other TDM projects in California. These three instances are indicated in their respective sections in Section 4.

In addition, each strategy is considered by CAPCOA as part of a larger category group: Land Use/Location, Neighborhood/Site Enhancement, Parking Policy/Pricing, Transit System Improvements, Commute Trip Reduction, and Road Pricing Management. The CAPCOA report provides certain maximum reductions in VMT for each individual strategy, as well as for each category of strategies. The maximum reductions serve as caps for each category to prevent the double counting of reductions resulting from a combination of related strategies, similar in concept to the dampening adjustment discussed above.

Similarly, the CAPCOA report sets overall maximum caps based on context, with a 20% maximum reduction cap set for "Suburban Center," the context most appropriate to the RMDP/SCP Project, based on the balance of jobs and housing facilitated by the RMDP/SCP Project and the availability of transit service throughout the Project site. This maximum cap recognizes that each set of strategies is somewhat bounded by the overall land use beyond a project site, opportunities to connect to other suburban and urban environments, and the set of already existing mobility and access tools. Exhibit 1 duplicates Chart 6-2 from the CAPCOA report, identifying the category and overall maximum VMT reduction caps, as well as the individual strategies included in each category.

4. EVALUATION OF RECOMMENDED TDM STRATEGIES

This section provides a detailed evaluation of each TDM strategy listed in Section 2: Overview of the Recommended TDM Plan, above. For each strategy that is based on the CAPCOA report, the related CAPCOA strategy code (for example, CAPCOA TRT-6 or SDT-3) is provided.

1. Integrate Affordable and Below Market Rate Housing

According to CAPCOA, a VMT reduction of 0.04% - 1.20% would be expected based on the inclusion of below market rate housing into residential and mixed-use development projects with more than 5 dwelling units (CAPCOA LUT-6). Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work. According to the research underlying the CAPCOA range of effectiveness, housing that is affordable to an average income of 75% below the area median income produces the expected VMT reduction. At Newhall Ranch, 10% of the total housing would be deemed affordable, below market rate, while 6% would be affordable to those with an average income of 75% below the area median income. As such, the more conservative 6% rate was utilized to calculate the VMT reduction attributable to this strategy.

The reduction rate is based on the amount of below market rate housing provided and calculated according to the following formula:

> % VMT Reduction = 4% times, or multiplied by (*) Percentage of units in the project that are below market rate

Approximately 10% of the housing facilitated by the RMDP/SCP Project would be below market rate housing, with 6% affordable to an average of 75% below the area median income. This type housing is therefore expected to result in a 0.2% decrease in total VMT (4% * 6% = 0.2%).

2. Pedestrian Network

According to CAPCOA, enhancing pedestrian infrastructure can reduce VMT for residential, retail, office, industrial, and mixed-use projects (CAPCOA SDT-1). A high quality pedestrian network within an urban or suburban project site would be expected to result in an estimated 1% VMT reduction. With the expansion of the pedestrian network to include connections to the off-site network, a project can achieve an estimated VMT reduction of up to 2%.

In order for the pedestrian network to facilitate a reduction in VMT, the pedestrian network must directly connect to all existing and planned pedestrian facilities both within and adjacent to the project site, while minimizing any barriers to pedestrian access. According to CAPCOA, pedestrian network improvements are those that eliminate physical barriers to pedestrian access, such as walls, landscaping, and slopes/steep inclines that prevent easy access.

The RMDP/SCP Project would facilitate development that would incorporate a high-quality pedestrian network to enhance pedestrian access both on- and off-site, thereby encouraging a mode shift from driving to walking. The pedestrian network would be built into the design of the street network throughout the Project site, and would connect to existing development surrounding the Project site and to a network of off-street trails that will link areas of residential development with areas of commercial development, schools, and open space. Moreover, higher capacity streets throughout the Project site would have sidewalks and generally avoid barriers to pedestrian travel such as walls, landscaping, and steep slopes/inclines that otherwise would impede pedestrian travel. As a result, this high quality network is expected to directly result in a 2% reduction in total VMT, and indirectly would combine with other TDM strategies to further reduce VMT.

3. *Traffic Calming*

According to CAPCOA, traffic calming strategies include design elements intended to reduce motor vehicle speeds and improve pedestrian and bicyclist safety, creating an environment that encourages people to walk or bike instead of driving (CAPCOA SDT-2). Design elements could include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

CAPCOA's estimation of VMT reduction for traffic calming measures is based on the percentage of streets and intersections within the project receiving traffic calming improvements. When 100% of streets and intersections within the project receive such improvements, there is an estimated 1% reduction in VMT. This estimated reduction in VMT applies to both urban and suburban projects, although the underlying literature relied upon by CAPCOA includes differences in reductions between the two. The VMT reductions were generally higher for traffic calming improvements in suburban environments (1.5%-2.0%) than urban environments (0.5%-0.6%). According to CAPCOA, "[t]hough the literature provides some difference between a suburban and urban context, the difference is small and thus a conservative estimate was used to be applied to all contexts" (CAPCOA, 192). Thus, CAPCOA's estimate ranges from 0.25%-1%, based on the percentage of streets and intersections incorporating traffic calming design elements.

Traffic calming improvements interact with other TDM strategies that encourage a mode shift from driving to walking and/or biking. The VMT reductions estimated by CAPCOA take this interaction into account and the estimated VMT reduction for traffic calming is specific to the traffic calming improvements and is separate from any other interacting measures.

For purposes of the RMDP/SCP Project, and based on the CAPCOA report, it is estimated that the traffic calming improvements would result in a 1% reduction in total VMT. This percentage is based on the fact that 100% of the streets and intersections will include one or more of the design elements listed in CAPCOA's description of traffic calming improvements, as detailed above, or other features such as streetscaping, NEV lanes, or bike lanes.

4. *Transit Network Expansion*

According to CAPCOA, transit network expansion includes the extension of local transit service (CAPCOA TST-3), shuttles to major rail transit centers and other areas within a project site (CAPCOA TST-6), and improved pedestrian access to transit facilities (CAPCOA TST-2; e.g., sidewalk/crosswalk safety enhancements and/or bus shelter improvements).

The CAPCOA report provides the following formula for calculating the percent VMT reduction associated with transit network expansion:

> % VMT Reduction = (% increase in transit network coverage) * (elasticity of transit) * (existing transit mode share) * (adj. factor = 0.67)

According to the CAPCOA report, transit network expansion results in VMT reductions ranging from 0.1-8.2%.

With respect to the RMDP/SCP Project, Santa Clarita Transit plans to extend existing bus routes into the planning areas where the RMDP/SCP Project would facilitate development, thereby connecting the RMDP/SCP Project's planning areas to major transit centers such as the Santa Clarita or Newhall Metrolink Stations.[2] Based on the CAPCOA formula, these planned transit enhancements were estimated to increase the existing transit system network coverage by 80%, a conservative estimate given the current lack of any transit presently serving the Project site. Given these coverage improvements (i.e., 80%), in combination with a transit elasticity of 1.01 based on CAPCOA documentation, and an existing 2.3% transit mode share as reported by the City of Santa Clarita,[3] the estimated reduction in total VMT attributable to the transit network expansion would be approximately 1.3% (80% * 1.01 * 2.3% * 0.67 = 1.3%).[4]

5. Alternative Work Schedules and Telecommute Program (Residential End)

This strategy captures commuters who live within the RMDP/SCS Project area and commute elsewhere, while Strategy 7 presented later captures commuters who live outside the RMDP/SCS Project area and work within the RMDP/SCS Project area.

According to CAPCOA, participation in an alternative work week or telecommute program results in fewer commute trips, which then reduces commute and overall VMT (CAPCOA TRT-6). The degree to which these programs reduce VMT is a direct result of the extent of the program and the number of people participating. Depending on the participation rate and the program type, the range in reduction of commute trip VMT is estimated by CAPCOA to be between 0.07% and 5.5%.

The program participation rate is approximated according to the methodology presented by CAPCOA, which itself is based on a Cambridge Systematics/Fehr & Peers study.[5] Based on this methodology, a maximum of 50% of the typical workforce would have the potential to participate in an alternative work schedule, and 50% of those people actually would chose to participate; i.e., 25% of the total workforce would chose to participate. CAPCOA conservatively suggests that this rate be adjusted down further, in order to take into consideration possible rebound effects (i.e., travel for other purposes during the day while working at home), to a 10% participation rate.

As to program type, telecommute program types based on alternative work schedules range from one to several telecommute days per week; that is, employees participating in the program would be expected to telecommute anywhere from 1 to 3 days. Based on the range of telecommute days, in combination with the marketing support of the Transportation Management Organization

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[2] City of Santa Clarita. *Transportation Development Plan*, May 2013.
[3] 2.3% transit mode share based on the 2014 Census Journey to Work data for the City of Santa Clarita.
[4] Transit elasticity of 1.01 for suburban transit routes based on CAPCOA documentation.
[5] Cambridge Systematics and Fehr & Peers. *Moving Cooler: An analysis of transportation strategies for reducing greenhouse gas emissions.* Urban Land Institute, 2009.

noted in Section 2, a telecommute program would be expected to result in an average of 1.5 days of telecommuting per week.

Given a participation rate of 10% in a program expected to result in an average of 1.5 days of telecommuting/week, CAPCOA estimates the commute VMT reduction as 2.2% (CAPCOA page 237). To extrapolate this reduction in commute VMT to a reduction in overall VMT, the commute VMT reduction rate of 2.2% was applied to the commute VMT, which is 11% of the total VMT attributable to home-based (production end) work trips.[6] Additionally, since any work trips that start and end within Newhall Ranch (internal trips) would be captured by the reduction for Strategy 7: Alternative Work Schedules and Telecommute Program (Work End), the results are multiplied by the percentage of home-to-work production-end trips, which are external, or 78%.[7] This results in an overall VMT reduction of 0.2% (2.2% * 11% * 78% = 0.2%).

6. Required Commute Trip Reduction Program

According to CAPCOA, a required commute trip reduction program (CAPCOA TRT-2) is a multi-strategy program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing and promotions, preferential parking, transit subsidies, and bicycle end-of-trip facilities. Commute trip programs are typically operated by Transportation Management Organizations that manage and promote the program, collect data and monitor effectiveness. In some cases, some strategies, such as ride-sharing or providing preferential parking for carpool participants, may be implemented and operated by individual employers who monitor and report progress regularly to the TMO. The critical components of a required commute trip program (TRT-2) compared to a voluntary commute trip program (TRT-1) is that the required commute trip program has established performance standards, required implementation, and regular monitoring and reporting. Participation in required commute trip reduction programs is typically required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

Based on the diversity of types of jobs that would exist as part of the development facilitated by the RMDP/SCP Project (i.e., large and small businesses, schools, community facilities), it is conservatively estimated that 50% of the employees would be employees of larger businesses eligible to access the services and benefits provided by the required commute trip program as a result of their employer’s required participation. This estimate is at the low end of CAPCOA’s expected participation range for this strategy, between 20% and 100%. According to CAPCOA, required commute trip reduction programs would result in a 21% decrease in vehicle mode share for commute trips for those employees who are eligible to participate in the program (CAPCOA page 224). Therefore, the following formula is used to estimate the commute-trip-related VMT reduction attributable to a required commute trip program:

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[6] Percent of VMT attributable to home-based (production end) work trips calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

[7] Percent of work trips that are external are 78%, calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

% VMT Reduction = (% employees eligible) * (21% reduction in vehicle mode share) * (% share of all trips attributable to home-based commute trips)

For the RMDP/SCP Project, it is estimated that a 1.5% VMT reduction would result from implementation of a required commute trip program based on a 50% employee eligibility rate, and a 21% reduction in the percentage share of all trips attributable to home-based work trips, which is 14% (50% * 21% * 14% = 1.5%).[8]

7. Alternative Work Schedules and Telecommute Program (Work End)

Related to alternative work schedules and telecommute programs from the residential perspective (Strategy 5) are similar programs viewed from the work, or employer, perspective. This strategy captures commuters who live outside the RMDP/SCS Project area and work within the RMDP/SCS Project area, while Strategy 5 captures commuters who live within the RMDP/SCS Project area and commute elsewhere. Therefore, the participation of an employee in an alternative work week or telecommute program is analogous to that of a project site resident (see Strategy 5, above): the higher the participation rate and the more extensive the program, the larger the reduction in VMT.

Determining the participation rate and program type for the telecommute program on the work end utilizes the same CAPCOA methodology as on the residential end: while 50% of a typical work force would have the potential to participate in the alternative work schedule, only a 10% participation rate is utilized. As to program type, commercial businesses that locate in the RMDP/SCP Project's planning areas would be encouraged to implement alternative work schedules and telecommuting options for their employees. Using the reference table provided on page 237 of the CAPCOA report, a 4/40 alternative work schedule (4 days per week, 10 hours a day) and a 10% participation rate would yield a 1.5% reduction in commute VMT.

To extrapolate the reduction in commute VMT to a reduction in overall VMT, the commute reduction rate of 1.5% is applied to the 14% of total VMT that is attributed to home-based (attraction end) work trips, thereby resulting in an overall VMT reduction of 0.2% (1.5% * 14% = 0.2%).

8. School Bus Program

According to CAPCOA, the implementation of a school bus program involves coordinating with local school districts to provide school bus service in the project area and local community (CAPCOA TRT-13). The degree to which the school bus program would reduce school VMT (i.e., those vehicle miles generated by student travel to and from a school) ranges from 38% to 63% dependent upon the number of families participating in the program.

Based on the methodology provided by CAPCOA, the reduction in school VMT is calculated as follows:

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[8] Percent VMT attributable to home-based (attraction end) work trips calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

> % Reduction in School VMT = Participation rate of Families * (39 school weeks / 52 weeks)

CAPCOA research identified an 84% participation rate based on a study conducted in connection with the Lamorinda School Bus Program serving Lafayette, Orinda, and Moraga, California. The Lamorinda study, which contains the only empirical data provided by CAPCOA supporting participation rates, determined that 84% of the families within the boundaries of the School Bus Program participated in the program. CAPCOA also includes a low end participation rate of 50%, which is not supported by quantitative study and is based on an assumption of a "minimum participation goal." Because the communities of Lafayette, Orinda, and Moraga are suburban communities similar to the type of communities that would be built as part of the Project, and because the proposed School Bus Program would have as its goal a maximum, rather than minimum, participation rate, based on the professional judgment of the engineers preparing this analysis, a participation rate of 84% was used as a starting point for the analysis. As a conservative estimate, the participation rate was reduced by 10% to 76%.

Based on the methodology provided by CAPCOA, the proposed School Bus Program would result in an annual reduction in school-trip VMT of 57.0% (76% of families participating * 75% (39 weeks of school / 52 weeks in a year) = 57.0% of annual school-trip VMT reduced). This percent reduction is then applied to the total VMT that would be generated by the Project's school-based trips, or 5.9% of total annual VMT, resulting in an overall VMT reduction of 3.4% (57.0% * 5.9% =3.4%).[9]

9. Transit Fare Subsidy for Employees

CAPCOA associates certain levels of transit fare subsidy with corresponding levels of commuter participation in transit based on locational context (CAPCOA TRT-4). For the Suburban Center context, a subsidy of $2.98 per person per day incentivizes a 16.4% reduction in commute VMT when employees are given a subsidy at their place of employment (CAPCOA page 231). The 16.4% reduction provided by CAPCOA is then multiplied by the percent of employees eligible to receive this subsidy to arrive at the final percent VMT reduction for this category of trips.

For subsidies of $2.98 per person per day, the CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies:

> % VMT Reduction = (% employees eligible to participate) * (16.4% reduction in commute VMT) * (% share of all trips attributable to home-based commute trips)

The transit fare subsidy will be offered through the TMO. Because an estimated 50% of Newhall Ranch employees would be eligible to access the services and benefits provided by the required commute trip program (Strategy 6) as a result of their employer's required participation, the remaining 50% of employees who commute to jobs located within the RMDP/SCP Project's planning areas will be eligible to access transit fare subsidies directly through the TMO. As noted

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[9] CAPCOA estimates that 9.8% of total trips (5.9% of total VMT) are related to school trips based on 2000-2001 California Statewide Travel Survey and 2001 NHTS Summary of Travel Trends.

above, at the level of $2.98 per day, which equates to between 25% and 100% of an existing round-trip Santa Clarita Transit fare, depending on service class, CAPCOA estimates that 16.4% of commuters would switch, resulting in a reduction of 8.2% of commute-based VMT (50% * 16.4%). Overall, the commute-based VMT for employees accounts for 14% of the overall VMT.[10] Therefore, an 8.2% reduction in commute-based VMT equates to a 1.1% reduction in overall VMT (14% * 8.2% = 1.1%).

10. Carshare Program

Carshare programs are membership-based programs that provide members access to a shared fleet of vehicles (CAPCOA TRT-9). Cost is generally based on a per mile or hourly basis. There are three common categories of carshare programs: transit station based, employer based, or residential based/citywide. Each of these programs has slightly different uses. Transit station-based carshare generally is intended to close the "last mile" gap by allowing users to drive from the transit station to their final destination. Employer-based carshare programs can provide transit/bike/walk commuters with an opportunity to conduct business/day trips while also providing a guaranteed ride home. Residential based/citywide carshare programs generally replace entire home-based trips.

The CAPCOA methodology calculates the reduction in overall VMT attributable to carshare programs as follows:

> % VMT Reduction = (37% reduction in carshare member VMT) * (20 carshare members per shared car) * (1 car / 2,000 suburban residents)

For purposes of the RMDP/SCP Project, the CAPCOA reduction in carshare member VMT for suburban areas is estimated as 0.4% (37% * 20/2,000 = 0.4%).

To incentivize participation, the recommended TDM Plan includes partial subsidization of the annual membership fee (50% subsidy) for up to 50% of the households that would elect to participate in the carshare program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households), and 100% subsidization of the annual fee for up to 100% of the below market rate households. The incentive program is entirely additive and does not factor in to the VMT reduction calculations.

11. Neighborhood Electric Vehicle (NEV) Strategy

CAPCOA associates a VMT reduction with neighborhood electric vehicle (NEV) participation and ownership, along with a travel network that accommodates NEV use, including features such as charging facilities, striping, signage, and educational tools (CAPCOA SDT-3). The VMT reductions are associated with market penetration levels (i.e., percent of households owning a NEV) and an average reduction in total VMT per NEV household of 12.7% (Percent Market Penetration * 12.7%), as follows:

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[10] Percent VMT attributable to home-based (attraction end) work trips calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010)..

- 1 out of 10 Households purchase an NEV (10%) * 12.7% = 1.3% reduction in total VMT
- 1 out of 5 Households purchase an NEV (20%) * 12.7% = 2.5% reduction in total VMT
- 1 out of 3 Households purchase an NEV (33%) * 12.7% = 4.2% reduction in total VMT

While the methodology of how to estimate market penetration is not well documented in CAPCOA, a case study undertaken for a community in Los Angeles County provides a method to estimate market penetration levels given certain subsidy levels.

The South Bay region in Los Angeles County conducted a pilot demonstration project for NEVs, which surveyed participants after the study on price-point and willingness to buy an NEV.[11] Based on this survey, 83% of respondents said they would consider purchasing an NEV at the $6,000 price point (or a 54% subsidy based on an average purchase price of $13,000), and 69% said they would consider purchasing an NEV at the $8,000 price point (or a 38% subsidy). However, these survey respondents are not reflective of the general public because they already expressed interest in NEVs by signing up to participate in the pilot study, and already had been given an NEV to drive, free of charge. At the end of the study, two out of 51 participating households purchased an NEV without any subsidy, or about 4%.

Assuming the above survey data for the South Bay region of L.A. County overstates NEV interest relative to an average resident who has not participated in a pilot study nor expressed a pre-existing interest in NEVs, based on our professional judgment it was estimated that the general population's willingness to purchase an NEV at each price point would be one-half that of the South Bay study participants' willingness. Using this approach and interpolating from the survey results, it is estimated that about 1 in 10 residents (12%) would consider purchasing an NEV with a 10% subsidy; about 1 in 5 (20%) would consider purchasing with a 25% subsidy; and about 1 in 3 (35%) would consider purchasing with a 50% subsidy.

The recommended TDM Plan includes a subsidy of 25%, to be promoted and marketed through the Transportation Management Organization, for households purchasing an NEV. At this price point, in combination with a supportive travel network that accommodates NEVs, it is estimated that 1 out of 5 households would purchase and use NEVs, resulting in an overall VMT reduction of 2.5% (12.7% * 20% = 2.5%).

12. Mobility Hubs

Mobility hubs are one-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. These sites are conveniently located within each neighborhood and employment center in order to attract the most use and provide the most benefit.

[11] Siembab, W. and Magarian, D. *Zero Emission Local Use Vehicles: The Neglected Sustainable Transportation Mode.* Published June 30, 2013 for the South Bay Cities Council of Governments.

Mobility hubs within the RMDP/SCP Project site would tie together the other mobility options available within the three planning areas, and are expected to enhance the effectiveness of other strategies contained within the recommended TDM Plan by providing a centralized location to access mobility services and by exposing users of one type of service to the other options available on site. The Mobility Hub results in its own VMT reductions because it improves the usability of the other strategies available at the hub by making transfers easier, providing information about the full suite of transportation options to users who may start out using only one type of transportation service, and providing a location for promotional events, in this case those related to transportation within Newhall Ranch.

Four small mobility hubs and two large mobility hubs would be established within the RMDP/SCP Project's three planning areas; potential locations of these mobility hubs are shown in Exhibit 2. Exhibit 3 shows a representative example of a large mobility hub, and Exhibit 4 shows a representative example of a small mobility hub. The following amenities are typical amenities that may be included at each mobility hub, based on size:

- Small Mobility Hub:
  - Info kiosks
  - Transit arrival information
  - Bike lockers and bike parking
  - Enhanced pedestrian amenities
  - Branding/signage
  - Co-location of carshare and bikeshare
- Large Mobility Hub:
  - Info kiosks
  - Transit arrival information
  - Bike lockers and bike parking
  - Enhanced pedestrian amenities
  - Branding/signage
  - Co-location of carshare and bikeshare
  - Designated park–and-ride spaces

The Mobility Hub strategy is a relatively new innovation, and research documenting the effectiveness of this strategy was not available at the time the CAPCOA report was published. However, based on research conducted by Fehr & Peers for other California projects, and the CAPCOA 0.1-0.5% percent reduction attributable to park-and-ride lots as a stand-alone facility (CAPCOA page 298), mobility hubs can contribute up to an additional 0.5% VMT reduction when used in conjunction with a suite of other TDM strategies. Based on this information and Fehr & Peers' professional engineering judgment, in combination with the inclusion of six mobility hubs and the related synergy with the Project site, a 0.3% overall VMT reduction was utilized for the RMDP/SCP Project.

13. Tech-Enabled Mobility

"Tech-enabled mobility" describes the development and provision of a one-stop website for transportation information, as well as complementary apps for mobile devices and computers. This website/app would provide comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (carshare, bikeshare), and traffic information for the development facilitated by the RMDP/SCP Project. This strategy brings together elements of and enhances the effectiveness of the other strategies included in the TDM Plan. By digitally assembling resources and information about transportation options and TDM services in one place, users are enabled to make different choices based on their needs for a particular trip. It also serves as an educational tool to expose users to the full range of transportation choices.

Additional capabilities of tech-enabled mobility include:

- It allows for two-way communication once the user has registered and downloaded the app. This can enable the TMO to remind users of transportation choices or alert users about promotions through push notifications, emails, or alerts.

- The website and app can be developed in a way that moves beyond simply assembling information in one place; it has the potential to "gamify" participation on the go, allowing users to set goals, track progress, provide rewards, and compare their activity to other users. Health/habit/lifestyle tracking apps are pervasive and popular, and the website/app format can engage users even when a trip is not being made.

One example of a mobile application that brings transportation services together in one digital space is GoLA (http://golaapp.com/), produced in partnership between the City of Los Angeles and Xerox. This app allows the user to see the full range of available choices, set mode-based preferences, compare trips across a variety of metrics (total travel time, monetary cost, and environmental cost), and select an itinerary that meets the needs of that trip. Another example of a more "gamified" version of a transportation website/app is the Denver Regional Council of Government's Clear the Air Challenge (http://cleartheairchallenge.org/). Arlington County, Virginia's comprehensive TDM program also includes several tech-enabled components that bring together the program's transportation options in a digital space (www.commuterpage.com).

This strategy is a relatively new innovation, and research documenting the effectiveness of this strategy was not available at the time the CAPCOA report was published. However, based on research conducted by Fehr & Peers at large employers in the Silicon Valley, and documentation from mobility-app developers on the effectiveness of their products, mobility websites and apps can contribute up to an additional 1%-2.5% VMT reduction when used in conjunction with a suite of other TDM strategies. Based on this research and professional engineering judgment, a conservative 1.5% overall VMT reduction was estimated for the RMDP/SCP Project based on the development of a website and mobile device application specific to Newhall Ranch and the mobility options available on-site and nearby and the potential to reach many more users with information, promotions, and service options with a faster and less costly frequency.

14. *Bikeshare Program*

According to CAPCOA, bikeshare has a minimal impact on VMT when implemented alone, but in conjunction with other strategies, can further enhance VMT reduction. Though CAPCOA lists bikeshare as a strategy, it does not provide associated estimates of VMT reduction.

In membership surveys of an established urban bikeshare system, a self-reported VMT reduction of 5.5% per year was observed.[12] Based on additional investigation done by Fehr & Peers into the effectiveness of this strategy, in combination with our professional judgment, it is estimated that the availability of bikeshare bicycles throughout the project site, in conjunction with subsidized membership, can reduce overall VMT by between 0.2%-0.5%.

Based on the conservative professional judgment of transportation engineers and planners, and in recognition of the differences between an established urban bikeshare system and the Suburban Center context of the RMDP/SCP Project's planning areas, a 0.3% VMT reduction was estimated, based on inclusion of an on-site bikeshare system with up to 15 stations. To provide additional incentive to participate in the bikeshare system, the TDM Plan will subsidize 50% of the annual cost for up to 1.5% of Project residents who live in market rate housing, and 100% of the annual household membership cost for below market rate housing. The incentive program is entirely additive and does not factor in to the VMT reduction calculations.

15. *Transit Fare Subsidy for Below Market Rate Housing Residents*

In addition to the transit fare subsidy for employees discussed above in Strategies 6 and 9, additional subsidies would be offered to residents living in below market rate households. This is a separate strategy, with an analogous methodology to Strategies 6 and 9.

For subsidies of $2.98 per person per day, the CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies, which is applied only to the external work trips, and to the 10% of households that would be affordable, below-market-rate:

> % VMT Reduction = (% employees eligible to participate) * (16.4% reduction in commute VMT) * (% share of all trips attributable to home-based commute trips) * (% external work trips) * (% below market rate households)

The same level of subsidy would be offered, the same level of eligibility is utilized, and the same information relative to the Santa Clarita Transit fare would apply as for the employee transit fare subsidy: 50% * 16.4% = 8.2%.[13] As previously described, the home-based (production end) work VMT accounts for 11% of the overall VMT, and 78% of those trips are external and would not be captured by the CTR program or transit fare subsidies for employees offered in Strategies 6 or 9. Because the subsidy would be offered to all 10% of the households identified as affordable, below

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[12] Capital Bikeshare membership survey, 2014.

[13] Based on this level of subsidy and the associated CAPCOA utilization rates, the TDM Plan is structured to provide subsidized passes to up to 300 individuals living in below market rate housing.

market rate, the 10% rate was utilized for the calculations. Therefore, an 8.2% reduction in commute-based VMT would equate to a 0.1% reduction in overall VMT (11% * 8.2% * 78% * 10% = 0.1%).

It should also be noted that subsidizing transit passes for below market rate housing residents would be expected to increase transit usage for non-commute (i.e., non-work-related) trips, further reducing VMT from the reduction estimate provided herein.

5. OVERALL VMT REDUCTION EFFECTIVENESS

Based on the methodology outlined in the CAPCOA report, when determining the overall VMT reduction, the VMT reduction separately calculated for each of the individual strategies should be dampened, or diminished, according to a multiplicative formula to account for the fact that some of the strategies may be redundant or applicable to the same populations. The multiplicative equation to accomplish this adjustment is as follows:

Overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C)*(1-D) …

where A, B, C, D … = individual mitigation strategy reduction percentages

For example, if two strategies were proposed with corresponding VMT reductions of 20% and 10%, the equation would be [1-(1-20%)*(1-10%)] or [1-(80%*90%)], which equates to a 28% reduction rather than the 30% reduction that would otherwise be seen with a direct sum. Therefore, the overall VMT reduction was calculated as a dampened, or diminished, total according to the equation above, which produces a conservative overall estimate.

Table 1, Strategies in the Recommended TDM Plan for the RMDP/SCP Project, identifies the strategies discussed above. The overall estimated VMT reduction, after accounting for the dampening effect previously described, is 14.9%. This total VMT reduction level is consistent with CAPCOA's global maximum reduction cap for projects, like the RMDP/SCP Project, located within a Suburban Center context. Additionally, Table 2, Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project, provides a tabular overview of the mathematical inputs informing the VMT reduction effectiveness calculations for each of the strategies.

Given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be better suited to the development facilitated by the RMDP/SCP Project. As additional TDM strategies become available, the TDM Plan would have the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness.

APPENDIX: TDM STRATEGY EXAMPLES

Alternative Work Schedules and Telecommute Programs

Telecommute programs have been implemented as a TDM strategy in Menlo Park, Alameda County, and San Mateo.[14]

Carshare Programs

Carshare programs have been implemented as a TDM strategy in Menlo Park and Alameda County, and are under development in Santa Monica.[15]

NEV Networks

Areas that have implemented NEV networks include Rancho Mission Viejo, a master planned community in Orange County, and the City of Lincoln, California.[16,17]

Mobility Hubs

Mobility Hubs have been used to bolster the use of mobility options in Broward County (Florida), Toronto, and Milton (Ontario), and are under development in the City of Los Angeles.[18]

Tech-Enabled Mobility

In June 2013, Rancho Mission Viejo and Ladera Ranch, master planned communities in Orange County, launched a comprehensive online mobility hub website to provide bus and train schedules, traffic information, and rideshare requests to users who then accumulate reward points based on commute decisions.[19] The goal of these sites was to enroll 500 residents of these communities (or 2% of all residents) in the program, further enabling easy access to the available transportation choices and encouraging participation in the suite of options.[20] Examples of

[14] http://www.menlopark.org/DocumentCenter/View/2634; http://www.greatcommunities.org/wp-content/uploads/pdf/2007%2011%20Parking%20TDM%20Policy%20Fact%20Sheet.pdf; http://www.alamedactc.org/files/managed/Document/2414/TDM_and_Parking_Management.pdf

[15] http://www.menlopark.org/DocumentCenter/View/2634; http://www.alamedactc.org/files/managed/Document/2414/TDM_and_Parking_Management.pdf

[16] Knight Shine, N. *Golf cart-like vehicles part of the plan at Rancho Mission Viejo*. OC Register. September 15, 2015. http://www.ocregister.com/articles/rancho-683758-mission-viejo.html

[17] MHM Engineers & Surveyors. *NEV Transportation Plan for the City of Lincoln*. August 2006. http://lincolnca.gov/home/showdocument?id=16

[18] http://www.browardmpo.org/projects-studies/mobility-hubs; https://crcresearch.org/case-studies/case-studies-sustainable-infrastructure/transportation/mobility-hubs-toronto-ontario; http://www.miltontransit.ca/en/transit-programs/resources/AppendixC-MiltonMobilityHubWorkingPaper.pdf; additional information provided by LADOT via email on 2/16/16.

[19] RideAmigos. *Rancho Mission Viejo Case Study*. http://rideamigos.com/wp-content/uploads/2014/11/2.1.8-Case-Study-iGoLadera.pdf

[20] Ekberg, Marie. *Five things you need to know about iGoLadera* The Orange County Register. March 27, 2013. http://www.ocregister.com/articles/community-501573-program-traffic.html

potential commercial providers of tech-enabled services include RideAmigos, Luum, Ridescout, Xerox, and Metropia.

Bikeshare Programs

Bikesharing has been implemented as a TDM strategy in Menlo Park and Berkeley, was implemented recently in the City of Santa Monica and the City of San Diego as an additional transportation option, and is under development in Downtown Los Angeles.[21]

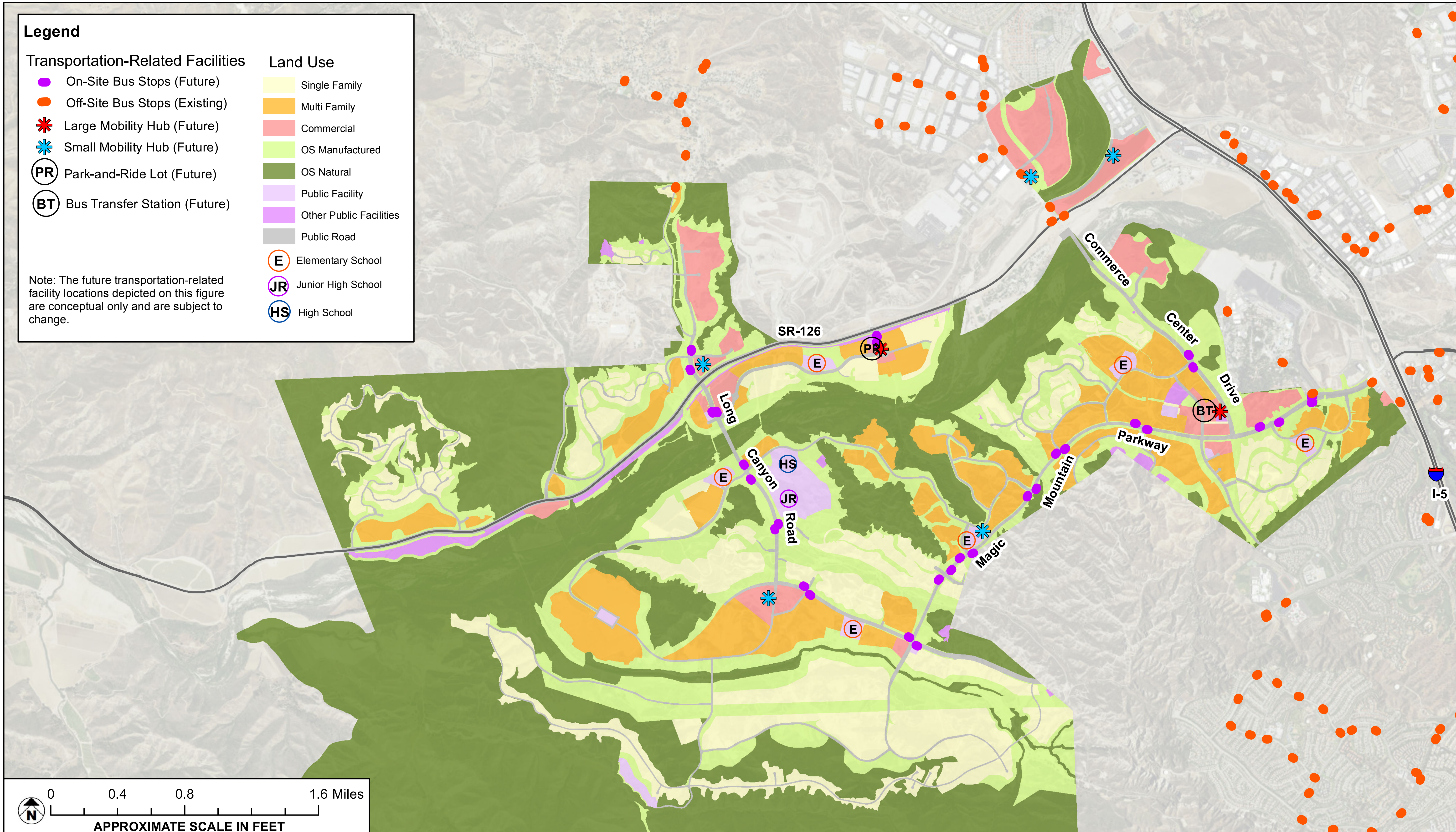
[21] http://www.smgov.net/Departments/PCD/Programs/Santa-Monica-Bike-Share/;
http://thesource.metro.net/2015/06/25/metro-board-approves-bikeshare-vendor-for-los-angeles-county/

CAPCOA

Chart 6-2: Transportation Strategies Organization

Transportation Measures (Five Subcategories) Global Maximum Reduction (all VMT): urban = 75%; compact infill = 40%; suburban center or suburban with NEV = 20%; suburban = 15%					Global Cap for Road Pricing needs further study	
Transportation Measures (Four Categories) Cross-Category Max Reduction (all VMT): urban = 70%; compact infill = 35%; suburban center or suburban with NEV = 15%; suburban = 10%				Max Reduction = 15% overall; work VMT = 25%; school VMT = 65%;	Max Reduction = 25% (all VMT)	
Land Use / Location Max Reduction: urban = 65%; compact infill = 30%; suburban center = 10%; suburban = 5%	**Neighborhood / Site Enhancement** Max Reduction: without NEV = 5%; with NEV = 15%	**Parking Policy / Pricing** Max Reduction = 20%	**Transit System Improvements** Max Reduction = 10%	**Commute Trip Reduction** (assumes mixed use) Max Reduction = 25% (work VMT)	**Road Pricing Management** Max Reduction = 25%	**Vehicles**
Density (30%)	Pedestrian Network (2%)	Parking Supply Limits (12.5%)	Network Expansion (8.2%)	CTR Program Required = 21% work VMT Voluntary = 6.2% work VMT	Cordon Pricing (22%)	Electrify Loading Docks
Design (21.3%)	Traffic Calming (1%)	Unbundled Parking Costs (13%)	Service Frequency / Speed (2.5%)	Transit Fare Subsidy (20% work VMT)	Traffic Flow Improvements (45% CO_2)	Utilize Alternative Fueled Vehicles
Location Efficiency (65%)	NEV Network (14.4) <NEV Parking>	On-Street Market Pricing (5.5%)	Bus Rapid Transit (3.2%)	Employee Parking Cash-out (7.7% work VMT)	Required Contributions by Project	Utilize Electric or Hybrid Vehicles
Diversity (30%)	Car Share Program (0.7%)	Residential Area Parking Permits	Access Improvements	Workplace Parking Pricing (19.7% work VMT)		
Destination Accessibility (20%)	Bicycle Network <Lanes> <Parking> <Land Dedication for Trails>		Station Bike Parking	Alternative Work Schedules & Telecommute (5.5% work VMT)		
Transit Accessibility (25%)	Urban Non-Motorized Zones		Local Shuttles	CTR Marketing (5.5% work VMT)		
BMR Housing (1.2%)			Park & Ride Lots*	Employer-Sponsored Vanpool/Shuttle (13.4% work VMT)		
Orientation Toward Non-Auto Corridor				Ride Share Program (15% work VMT)		
Proximity to Bike Path				Bike Share Program		
				End of Trip Facilities		
				Preferential Parking Permit		
				School Pool (15.8% school VMT)		
				School Bus (6.3% school VMT)		

Note: Strategies in bold text are primary strategies with reported VMT reductions; non-bolded strategies are support or grouped strategies.



SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

Exhibit 2

Meridian Consultants

Conceptual Transit Plan

080-001-15

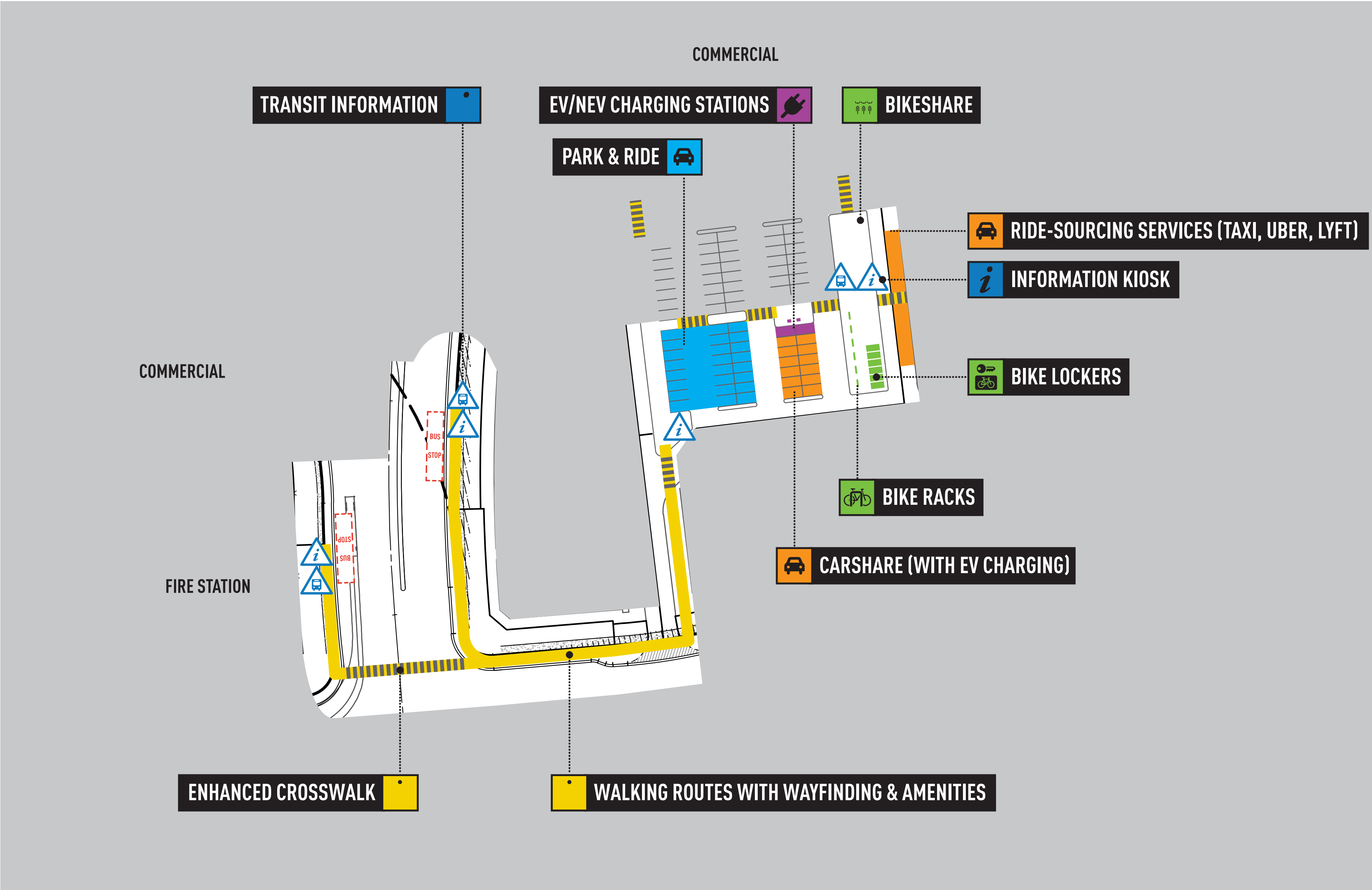


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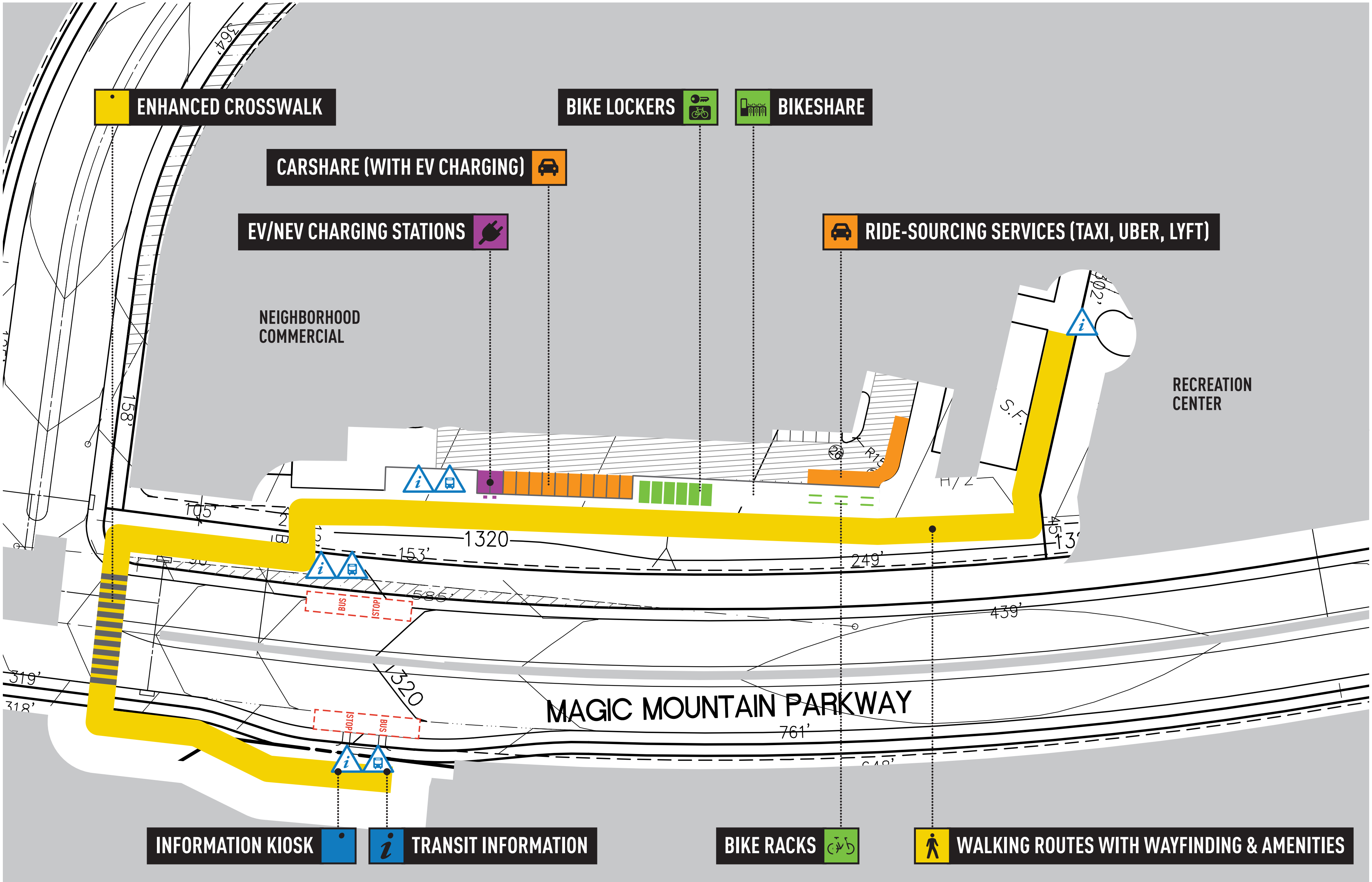
Exhibit 3

Conceptual Large Mobility Hub Plan

The facilities and related locations depicted on this plan are conceptual only and are subject to change.



\\fpla03\data\Jobs\Active\2800s\2810_Newhall Ranch\Graphics\AI

Exhibit 4

Conceptual Small Mobility Hub Plan

The facilities and related locations depicted on this plan are conceptual only and are subject to change.

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	6% of units are below market rate and affordable to an average income of 75% below area median income	LUT-6	0.04%-1.2%	0.2%	0.2%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	10% of employees participating; 1.5 days of telecommuting to jobs outside Newhall Ranch	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.2%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating); includes TRT-3, TRT-5, TRT-7, TRT-8	TRT-2	4.2%-21% (commute trips only)	10.5%	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips	1.5%	0.2%
8	School Bus Program	Implement school bus service.	76% of families using school bus program (electric bus)	TRT-13	38%-63% (school trips only)	57.0%	3.4%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $2.98/day subsidy	TRT-4	0.3%-20% (commute trips	8.2%	1.1%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%
11	NEV Subsidies	Travel network that accommodates use of NEVs, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies are included in this strategy.	1 NEV per 5 households	SDT-3	0.5%-12.7%	2.5%	2.5%
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within each neighborhood and employment center.	Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations	N/A	0%-0.5%[5]	0.3%	0.3%

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[5]	1.5%	1.5%
14	Bikeshare	On-site availability of bikeshare bicycles throughout the project site.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[5]	0.3%	0.3%
15	Transit Fare Subsidy - Below Market Rate Households	Discounted public transit passes to below market rate households.	Increases transit mode share for external home-work productions.	N/A	N/A	8.2%	0.1%
Overall Global VMT Reduction							**14.9%[6]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
6. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Below Market Rate Housing Affordable to an Average Income of 75% Below Area Median Income	LUT-6	0.04%-1.2%	4% Initial CAPCOA Reduction	6% BMR & Low-Income Housing	-	-	-	0.2%
2	Pedestrian Network	SDT-1	0%-2%			(Calculation N/A)			2.0%
3	Traffic Calming	SDT-2	0.25%-1%			(Calculation N/A)			1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)	2.2% CAPCOA Reduction (given 10% participation; 1.5 days tele-commuting)	11% of VMT (home-based work productions)	78% of work trips external to Newhall Ranch	-	-	0.2%
6	Required Commute Trip Reduction Program (includes creation of TMO)	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	14% of VMT (home-based work attractions)	-	-	-	0.2%
8	School Bus Program	TRT-13	38%-63% (school trips only)	76% participation rate	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	-	-	3.4%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	16.4% reduction in commute VMT (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.1%
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	90% Market rate households; 10% Below Market Rate Households	-	0.4%

Table 2

Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
11	NEV Subsidies	SDT-3	0.5%-12.7%	1 / 5 HH with an NEV	12.7% VMT reduction (CAPCOA)	-	-	-	2.5%
12	Mobility Hubs	N/A	0%-0.5%[5]			(Calculation N/A)			0.3%
13	Tech-Enabled Mobility	N/A	1%-2.5%[5]			(Calculation N/A)			1.5%
14	Bikeshare	TRT-12	0.2%-0.5%[5]			(Calculation N/A)			0.3%
15	Transit Fare Subsidy - Below Market Rate Households	N/A	N/A	50% Participation	16.4% reduction in commute VMT (CAPCOA)	11% of VMT (home-based productions)	78% of work trips external to Newhall Ranch	10% Below Market Rate households	0.1%
Overall Global VMT Reduction									**14.9%[6]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
6. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

ATTACHMENT

NEWHALL RANCH TRANSPORTATION DEMAND MANAGEMENT PLAN

Newhall Ranch

Transportation Demand Management Plan

September 2016

Prepared by UrbanTrans North America

Table of Contents

Executive Summary

The Newhall Ranch Transportation Demand Management (TDM) Plan is a comprehensive plan designed to achieve reductions in vehicle miles traveled (VMT) and, in so doing, reduce greenhouse gas (GHG) emissions.[1] Accordingly, this TDM Plan provides a summary description of the existing and planned regional transportation network, a listing of each of the strategies that comprise this TDM Plan with corresponding information regarding application of the strategy, and a step-by-step plan of implementation.

The TDM Plan applies to new development located on the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas (the Project Site) that is facilitated by the Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP) Project. Specifically, the TDM Plan will serve planned development within the Project Site, which consists of up to approximately 21,242 residential units; about 9.3 million square feet of commercial uses; and, numerous public facilities, including schools, fire stations, a library, and recreational amenities. This TDM Plan will serve as an "umbrella plan," with appropriate and customized application to individual villages and land uses, as applicable, located within the three planning areas (i.e., the Newhall Ranch Specific Plan, Entrada and Valencia Commerce Center sites).

The core objectives of the TDM Plan are to reduce the number of single occupancy vehicle trips, through the utilization of alternative forms of motorized and non-motorized transport and related strategies, and thereby reduce total VMT and the corresponding GHG emissions. Therefore, as presented below, the TDM Plan includes a number of strategies that enable the Project Site's residents, employees, and visitors to utilize transit, ridesharing, walking, biking, telecommuting, and other transportation options. The TDM Plan relies, in part, on the design of the planned development and, in part, on innovative strategies developed by the transportation planning and engineering community to achieve its objectives, and provides the foundational elements necessary for the successful implementation of the TDM strategies outlined herein.

A non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to provide the services required by this TDM Plan, as applicable. The TMO and the long-term implementation of the TDM Plan will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required

[1] "Newhall Ranch" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

to pay; this payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties.

This TDM Plan is based, in part, on information and analysis contained in a technical memorandum entitled *RMDP/SCP Project: Transportation Demand Management Plan Evaluation*, Fehr & Peers (September 2016). The memorandum analyzes each of the VMT reduction strategies presented in this Plan and, based primarily on guidance provided by the California Air Pollution Control Officers Association, calculates the VMT reduction expected to result with implementation of each strategy. The memorandum, including appendix and exhibits, provides technical support for the VMT reductions expected to be achieved with implementation of this Plan.

1.0 Background Information

1.1 Regional Setting

This section provides an overview of the existing and planned transportation network in the vicinity of the Project Site, including transit, roadways, bicycle/trails network, and the pedestrian environment.

The Project Site is located in the northern portion of unincorporated Los Angeles County in the Santa Clarita Valley. The Project Site area begins just west of Interstate 5 and continues to the boundary between Los Angeles and Ventura Counties, as shown in Figure 1. Traversing the Site is State Route (SR) 126, which functions as an east-west travel corridor between the Santa Clarita Valley and Ventura County. This section describes the transportation context to provide an understanding of the TDM needs and opportunities at the Project Site.

Figure 1: Project Site Vicinity Map

1.1.1 Transit Network

The Project Site is located within the City of Santa Clarita Transit service area. The agency operates nine local bus routes and four commuter routes that connect the City's neighborhoods with each other, as well as provide connections to regional transit via the following six transfer stations: the Santa Clarita, Newhall, Via Princessa, and Chatsworth Metrolink stations, the North Hollywood Red/Orange Line Station, and the McBean Regional Transit Center, which includes a park and ride lot. Commuter Express Service also is available during rush hours to Century City and downtown Los Angeles.

On average, service frequency for local bus routes ranges from 30 minutes to an hour during morning and evening peak hours. Most routes run between 5:00 A.M. and 10:00 P.M. on weekdays. Weekend service is less frequent, starts later in the morning, and ends earlier in the evening. Commuter train service into downtown Los Angeles is provided via the Metrolink Antelope Valley

Line, which takes less than an hour to reach Union Station and runs 15 times a day between 5:00 A.M. and 7:30 P.M. From the North Hollywood Metro Station, the Red Line runs every ten minutes through Hollywood to Union Station, a ride that takes approximately 30 minutes. The Orange Line serves points west and terminates in Chatsworth. Figure 2 shows a map with regional connections. Figure 3 illustrates the existing local Santa Clarita Transit Network.

Figure 2: City of Santa Clarita Transit Regional Transit Connections

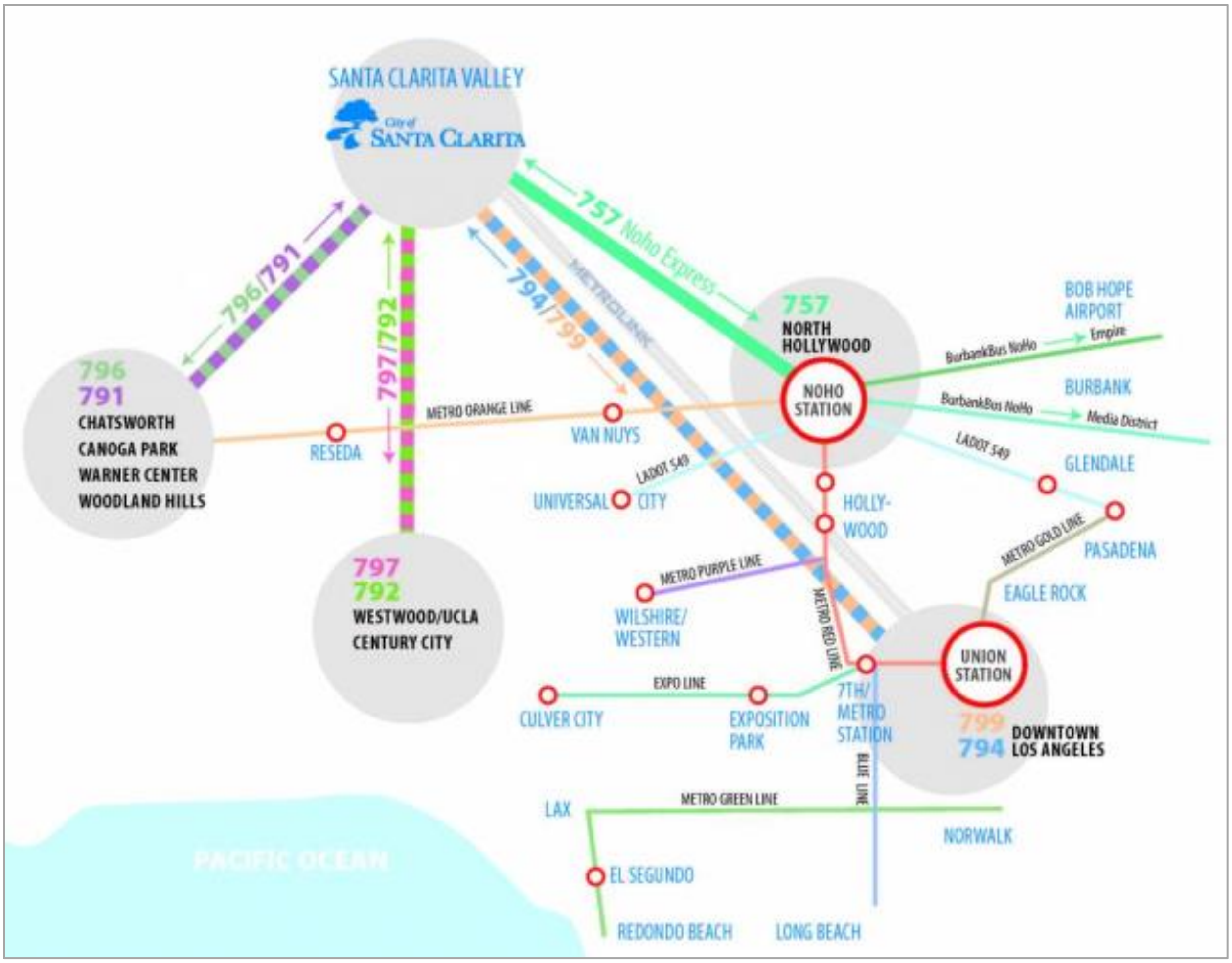
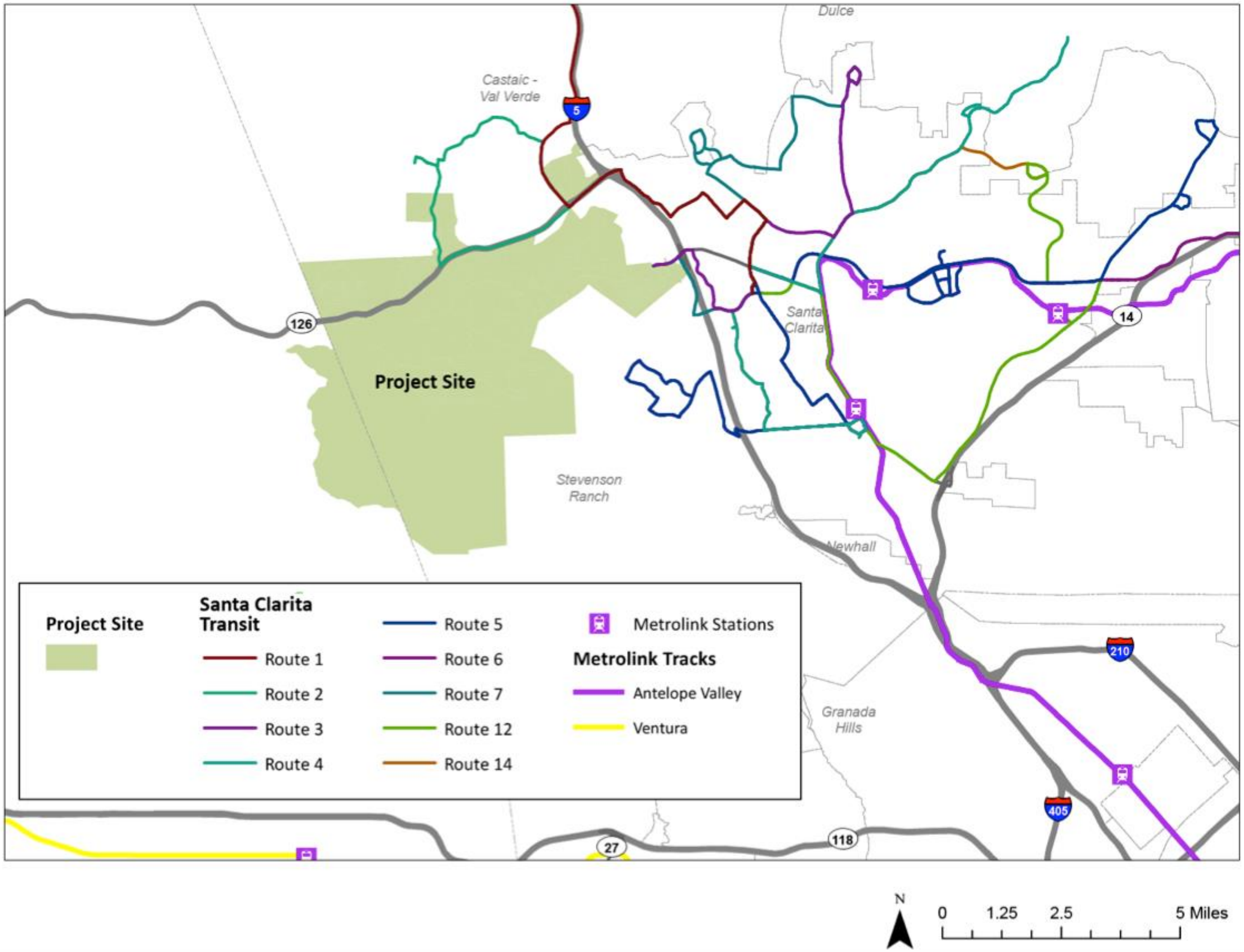


Figure 3: City of Santa Clarita Transit Local Service



1.1.2 Major Roadways

The Project Site is easily accessible from Interstate 5, which runs north-south and connects to downtown Los Angeles, and from Highway 126, which runs east-west between I-5 and the City of Ventura. A northward expansion of existing high occupancy vehicle (HOV) lanes from Highway 14 to north of Highway 126 is planned and scheduled to be completed in 2023. Within the Project Site area, an extension of Magic Mountain Parkway will run through the center of the site and connect with Long Canyon Road, an extension of the existing Valencia Boulevard. North-south connections will be provided by the extension of Commerce Center Drive, which will connect across Highway 126 to the Valencia Commerce Center, and by Long Canyon Road, which will connect to the existing Chiquito Canyon Road north of Highway 126. These new roads will be constructed as major and secondary highways along which transit service will be available.

1.1.3 Bicycle/Trails Network

The Los Angeles County Bicycle Master Plan adopted in 2012 identifies the addition of bike paths, lanes, or routes to several roadways adjacent to the Project Site. Planned improvements include bike paths and lanes along The Old Road, Castaic Creek, and the Santa Clara River/Highway 126. The bicycle master plan and related resources can be found here: https://dpw.lacounty.gov/pdd/bike/masterplan.cfm.

The City of Santa Clarita adopted a non-motorized transportation plan in 2014, which includes network and infrastructure improvements, facility design recommendations, and programmatic recommendations, including bicycle education and encouragement programs. The City of Santa Clarita is a Bronze level Bicycle Friendly Community, a recognition awarded by the League of American Bicyclists. The city's web site includes maps, bike parking information, safety tips, bicycles and transit information, and other resources. See: http://www.bicyclela.org/Programs.htm.

The Project's proposed network of bicycle and multi-use trails generally will resemble the extensive existing trail network in neighboring Valencia. Off-street, multi-use trails will connect the villages within the Project Site. They will be supplemented by paseos, wide sidewalks with lighting, benches, and shade trees that provide connections to activity centers, such as schools, recreation centers, and neighborhood centers. On-street bike lanes will be provided on major roads as well.

1.1.4 Pedestrian Environment

Sidewalks will be provided along all roads within the planned development located on the Project Site, supplemented by the trail network. Cul-de-sacs are part of the street design in certain locations, although pedestrian connections will be provided at some of the planned cul-de-sacs to improve pedestrian connectivity.

2.0 TDM Strategies

The strategies outlined below shall be implemented pursuant to this TDM Plan. However, in light of the ongoing evolution of transportation technology and advancements, the strategies set forth below may be modified or replaced, as necessary, with alternative strategies of equal or enhanced effectiveness. Therefore, the applicant (or its designee) and/or the TMO, or equivalent management entity, shall periodically evaluate the parameters of this TDM Plan so as to ensure that the strategies are meeting the needs and priorities of the residents, employees, tenants, and visitors to the Project Site. As new technologies and strategies become available, the TDM Plan can be modified in order to implement alternative technologies and/or strategies of equal or enhanced effectiveness.

2.1 TDM Strategy Description

The following is a brief description of each TDM strategy and its application to the Project Site.

<u>Construction</u>

1. **Construction Traffic Management Plan**

   Description: A construction traffic management plan can be effective both to reduce VMT and reduce the potential construction-related congestion on traffic by maintaining mobility to, from, and within the Project Site during the construction period.

   Application: Prior to issuance of a grading or building permit for each village level project, the applicant, or its designee, shall develop a Construction Traffic Management Plan that may include, as applicable: worker carpools through available incentives; remote parking areas and corresponding shuttle service; work hours and truck deliveries scheduled to the extent feasible to avoid peak hour traffic conditions (i.e., 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M.); and re-routing construction-related traffic from congested streets (i.e., those streets, if any, operating at unacceptable levels of service during the peak hours).

<u>Operation</u>

1. **Integrate Affordable and Below Market Rate Housing**

   Description: Income has a statistically significant effect on the probability that a commuter will take transit or walk to work[2]. Below Market Rate (BMR) housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing

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[2] Bento, Antonio M., Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. "The Effects of Urban Spatial Structure on Travel Demand in the United States." *The Review of Economics and Statistics* 87,3: 466-478.

balance near transit. Incorporating BMR also can encourage smaller units within the same building footprint, thereby increasing density and potential transit ridership.

Application: The applicant, or its designee, shall include an Affordable Housing Program as part of the planned development within the Project Site, in accordance with the County of Los Angeles' Newhall Ranch Specific Plan approvals.

2. Pedestrian Network

Description: Providing a pedestrian access network to link areas of a Project Site encourages people to walk instead of drive. This mode shift results in people driving less and, thus, a reduction in VMT.

Application: The applicant, or its designee, shall include within the planned development located on the Project Site pedestrian-movement facilities (e.g., sidewalks, paseos, and trails as depicted in the Newhall Ranch Specific Plan Mobility Plan) that eliminate physical barriers and provide pedestrian-based access to both on- and off-site complementary land uses (e.g., neighborhood-serving commercial retail opportunities; schools; recreational amenities).

3. **Traffic Calming**

Description: Providing traffic calming measures can encourage people to walk or bike instead of using a vehicle, thereby reducing VMT. Examples of traffic calming features include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others**.**

Application: The applicant, or its designee, shall include within the planned development located on the Project Site design elements that reduce motor vehicle speeds and improve pedestrian and bicyclist safety on the on-site streets and intersections. These design elements may include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

4. **Transit Network Expansion**

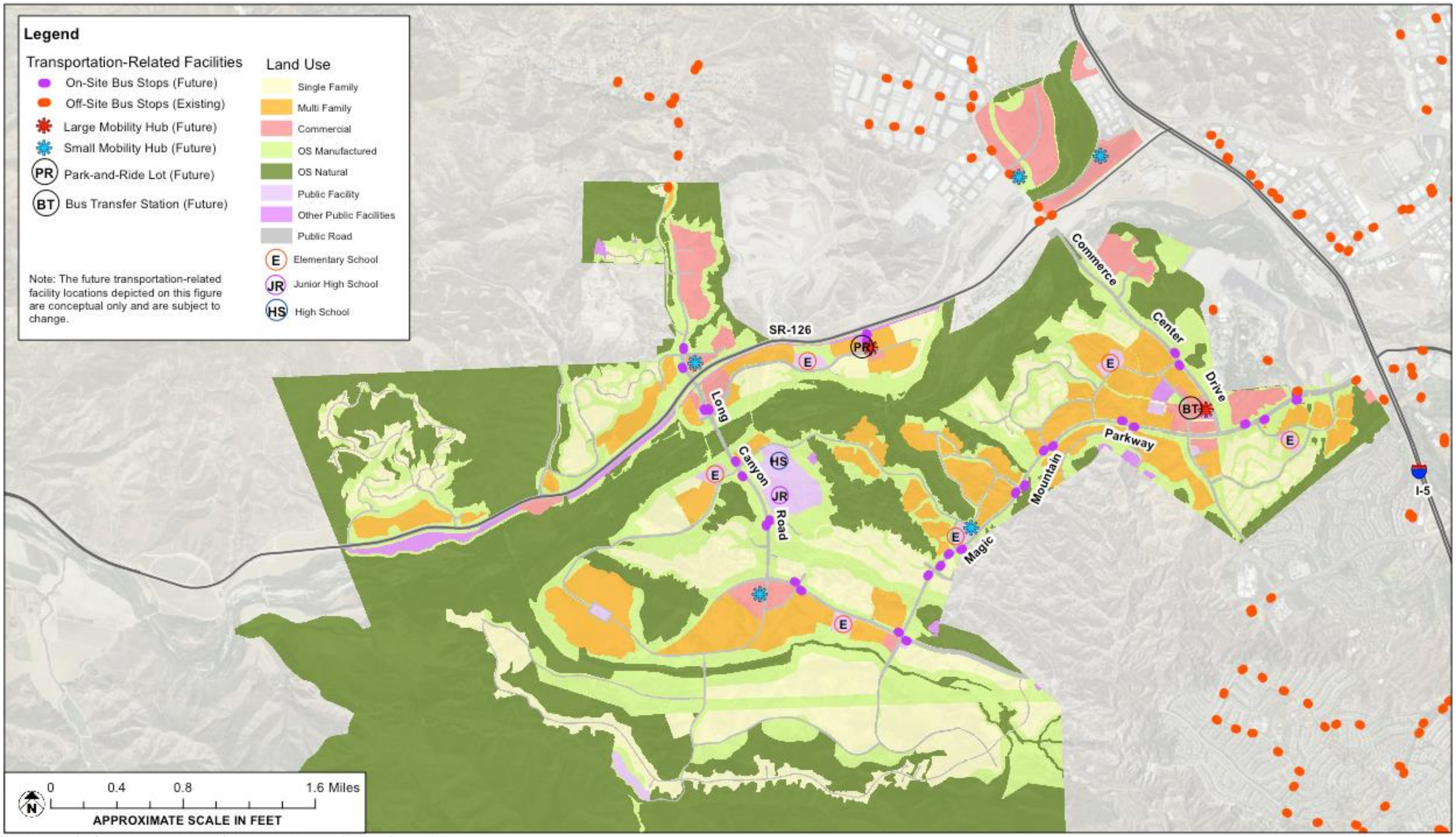
Description: Increasing transit availability through route expansion or increasing existing transit frequency improves access to the Project Site and, therefore, will encourage transit ridership. This mode shift results in people driving less and, thus, a reduction in VMT.

Application: The TMO, or its equivalent management entity, shall coordinate with the local transit agencies, including Santa Clarita Transit, to implement the Conceptual Transit Plan illustrated on Figure 4, to provide an expanded transit network that connects the Project

Site to major transit centers in the Santa Clarita Valley, and enhance on and off-site connectivity options via transit.[3] The expanded transit network shall include bus stops located throughout the development area, a bus transfer station, and a park-and-ride lot to the extent deemed appropriate.

[3] See, Fehr & Peers Technical Memorandum, *RMDP/SCP Project: Transportation Demand Management Plan Evaluation* (September 2016), Exhibit 2.

Figure 4: Conceptual Transit Plan



SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

FIGURE A

Meridian Consultants

Conceptual Transit Plan

5. **Alternative Work Schedules and Telecommute Program (Residential End)**

Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

Application: In furtherance of this strategy relative to Project residents, the TMO, or its equivalent management entity, shall utilize all appropriate marketing tools, including incentive strategies, to promote alternative work schedules and telecommuting on the part of Project residents, as feasible. In addition, the applicant, or its designee, shall construct all residential units to facilitate installation of high-speed internet services.

6. **Required Commute Trip Reduction Program**

Description: A Commute Trip Reduction (CTR) program is an employer-administered program that discourages single-occupancy vehicle trips and encourages alternative modes of transportation such as carpooling, taking transit, walking, and biking. A CTR program provides employees with assistance in using alternative modes of travel, and provides both "carrots" and "sticks" to achieve behavior change. A typical CTR program may include the following: preferential carpool parking, flexible work schedules for carpools, ridematching, designation of a transportation coordinator, transit subsidies, vanpool assistance, and bicycle end-trip facilities (e.g., parking, showers, and lockers). Participation in required commute trip reduction programs typically is required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

Application: The TMO, or its equivalent management entity, shall coordinate with large business employers of the planned development located on the Project Site to implement a required CTR program that may include, but is not limited to, the utilization of ride sharing; provision of transit subsidies and preferential parking to carpools, vanpools and other commute strategies that minimize the use of single occupancy vehicles; and, installs end-of trip bicycle facilities. As part of the program, the TMO (or equivalent management entity) shall establish performance and monitoring standards for the program's implementation status. In furtherance of this strategy, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants, employers, and employees of the Project Site's commercial areas, which establish and promote the benefits of commuting habits that reduce vehicle miles traveled. Additionally, the applicant/designee or the TMO (or equivalent management entity), as applicable, shall coordinate with commercial builders/property owners to promote ridesharing through a multi-faceted approach that includes, but is not limited to, the measures below:

- Designating a certain percentage of parking spaces for ride-sharing vehicles that is equivalent to at least one dedicated parking space per 25,000 square feet of office space;

- Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles; and

- Providing a web site or message board for coordinating rides in conjunction with Strategy

7. **Alternative Work Schedules and Telecommute Program (Work End)**

   Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

   Application: The TMO, or its equivalent management entity, shall coordinate with employers of the planned development located on the Project Site to facilitate the utilization of non-traditional worker commute patterns, for both Project residents and Project employees, by encouraging the use of alternative work schedules and telecommuting. In furtherance of this strategy for Project employees, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants and employers located in commercial areas on the Project Site that establish the benefits of alternative work schedules/telecommuting and provide successful templates for the implementation of such alternative approaches in the workplace. Additionally, any property management company managing commercial property on the Project Site shall require employers with 100 or more employees within the Project Site to develop and implement an alternative work schedules/telecommuting program consisting of the following elements: (1) appointment of a program coordinator; (2) identification of specific categories of employment positions that are appropriate for alternative work schedules and/or telecommuting; (3) provision of required equipment for telecommuting (e.g., hardware, software, and security); and (4) establishment of communications strategies to facilitate satisfaction of employment responsibilities (e.g., instant messaging). In furtherance of this strategy for Project residents, all residential units will be constructed with high-speed, high-capacity internet, and will be included in the TMO's marketing and incentive strategies.

8. **School Bus Program**

   Description: School travel can be a large trip generator, and school bus programs have shown to be an important and cost effective way to reduce overall trips in the community.

   Application: The applicant, or its designee, in coordination with the Project Site's school districts shall establish and implement a school busing program to transport students residing within the Project Site to the on-site elementary, junior high, and high schools. The program shall be implemented in phases that correspond to the number of residential units and on-site schools. The TMO, or equivalent management entity, also shall implement school travel planning to promote both the school bus program, and to provide education and incentives intended to increase biking, walking, and carpooling to school.

9. **Transit Fare Subsidies for Employees**

Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund and shall coordinate with those employers of the planned development located on the Project Site not required to participate in the Required Commute Trip Reduction program (Strategy 6) to provide alternative transportation subsidies to employees who commute to jobs located within the Project Site.

10. **Carshare Program**

Description: Carshare members, on average, have lower auto ownership rates and drive less than non-carshare members. One study found that, on average, 21% of carshare members in North America gave up their primary or secondary vehicle after joining a carsharing program[4].

Application: The TMO, or its equivalent management entity, shall establish a membership-based carshare program, whereby members have access to a shared fleet of vehicles. In order to incentivize participation, carshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership fee for up to 50 percent of the market rate households that elect to participate in the program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households); and, will subsidize 100 percent of the annual fee for up to 100 percent of the below market rate households. As described in the *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers (September 2016),* the incentive program is entirely additive and does not factor into the VMT reduction calculations. In the event the TMO is unable to retain a commercial carshare vendor, the TMO may consider diverting the funds otherwise planned to provide membership subsidies to the establishment of a peer-to-peer carsharing model, such as Turo or Getaround. The peer-to-peer model relies on private individuals registering their car for use by other residents for a fee. To ensure comparable levels of service and reliability to a traditional carshare provider (such as Zipcar or Car2Go), the peer-to-peer model would require aggressive marketing, outreach, and incentives to ensure that a sufficient fleet is established in terms of the number of vehicles and their locations. Another alternative approach could be the

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[4] IBI Group. (2009). *Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards.* The City of Toronto.

establishment of a Newhall Ranch-specific carshare service, as has been done successfully in small cities such as Ithaca, New York (population 30,515).

11. **Neighborhood Electric Vehicle (NEV) Strategy**

Description: NEVs are classified in the California Vehicle Code as a "low speed vehicle". They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length and can promote a mode shift from single-occupancy vehicles, particularly in their ability to replace short trips.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site a comprehensive, interconnected travel network that accommodates NEV use and includes features such as NEV parking, charging facilities, striping, signage, and educational tools. Additionally, the applicant or its designee will provide funding for a subsidy covering 25 percent of the NEV purchase price that would be made available to 20 percent of the residential units located on the Project Site.

12. **Mobility Hubs**

Description: Mobility hubs are one-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. Mobility hubs are designed to facilitate multi-modal travel and encourage mode shifts by co-locating services and aggregating information.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site four small mobility hubs and two large mobility hubs. The following amenities are typical amenities that may be included at each mobility hub, dependent upon size (see *RMDP/SCP Project: Transportation Demand Management Plan Evaulation, Fehr & Peers, September 2016, Exhibits 3 and 4*):

Small Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage
- Co-location of carshare and bikeshare

Large Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage

- Co-location of carshare and bikeshare
- Designated park-and-ride spaces

13. **Tech-Enabled Mobility**

    Description: Advances in technology have led to innovative new TDM opportunities. Recent technological applications include improved ride matching apps, real-time ride sharing, and innovative platforms that allow for trip planning, trip tracking, the administration of rewards programs, and real-time bus information.

    Application: The TMO, or its equivalent management entity, shall establish as part of the planned development located on the Project Site a one-stop website for transportation information, as well as complementary apps for mobile devices and computers.

14. **Bikeshare Program**

    Description: Similar to carshare members, bikeshare members also have lower auto ownership rates and drive less than non-bikeshare member counterparts. Studies have found that on average 7% of bikeshare members replaced their personal vehicle with the bikeshare[5].

    Application: The TMO, or its equivalent management entity, shall establish a bikeshare system on the Project Site with up to 15 stations. In order to incentivize participation, bikeshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership cost for up to 1.5 percent of Project residents who live in market rate housing; and, 100 percent of the annual household membership cost for below market rate households. As described in the *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers (September 2016),* the incentive program is entirely additive and does not factor in to the VMT reduction calculations.

15. **Transit Fare Subsidies for Below Market Rate Housing Residents**

    Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

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[5] Johnston, K. (2014, April 7). Beyond Urban Planning: The Economics of Capital Bikeshare. *Georgetown Public Policy Review*. Retrieved from http://gppreview.com/2014/04/07/beyond-urban-planning-the-economics-of-capital-bikeshare/

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund, and shall provide alternative transportation subsidies to the below market rate households located within the Project Site (up to 300 passes based on anticipated participation rates)***.***

Table 1: TDM Plan Performance Metrics and Targets, sets forth the applicable performance metrics and targets for each strategy identified for implementation herein. Notably, however, and as described in Chapter 4.0 below, implementation of this “umbrella plan” will be subject to applicability evaluations and customization efforts in conjunction with the processing of County-level entitlements for planned development located on the Project Site. The overall implementation of this TDM Plan on the Project Site is anticipated to produce the desired effect and facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

2.2 TDM Resources

The following regional and local resources presently are available to facilitate implementation of the TDM Plan.

2.2.1 Go511

Go511 is Southern California’s traffic information portal. It links commuters and employers to resources and information about car- and vanpooling, trip planning, commute costs, current traffic, and other helpful commute information. It offers regional employer programs, including a free Guaranteed Ride Home program, which provides commuters who take transit, car- or vanpool, or bike or walk to work with a free ride home in case of an emergency.

The affiliated ride share service, RideMatching, a joint partnership between Los Angeles County, Orange County, and Ventura County, provides commuters with a platform to find a car- or vanpool match, as well as other local resources and incentives for use. Additional employer and commuter programs are available from the Los Angeles County Metropolitan Transportation Authority, which also offers assistance with and incentives for setting up vanpools.

Associated web sites:

http://www.go511.com/

https://www.ridematch.info/

http://www.metro.net/riding/rideshare/

2.2.2 Vanpool Providers

Commuter vanpooling is a transportation mode that encourages employees who live near each other to commute to work via a van leased to the group by a private company. Two major vanpool providers operating in Southern California are vRide and Enterprise Rideshare. As of this writing, vRide operates 227 vanpools originating in Santa Clarita with destinations throughout the Los Angeles region. The Los Angeles County Metropolitan Transportation Authority (Metro) also has a vanpool program that offers assistance with vanpool formation and provides a $400 subsidy per vanpool.

Associated web sites:

https://www.metro.net/riding/vanpool/

http://www.enterpriserideshare.com/vanpool/en.html

http://www.vride.com/

2.2.3 Ridesourcing Options

In addition to traditional taxicab service, both Uber and Lyft operate in a service area that includes the City of Santa Clarita and the County of Los Angeles, including the Project Site. Both companies allow users to request rides real-time via a mobile app with payment processed through the app, and offer carpooling options on the fly (Lyft Line and UberPool). Rides are generally less expensive than a taxi ride, based on supply and demand of drivers and passengers..

3.0 TDM Implementation Plan

Following the California Department of Fish & Wildlife's (CDFW) approval of the Newhall Ranch RMDP/SCP, implementation of this TDM Plan will be overseen by the County of Los Angeles as individual village-level projects are processed and approved by the County. Because the VMT-reducing strategies that comprise the TDM Plan are expected to have varying levels of applicability and degrees of effectiveness for individual village-level projects, the TDM Plan (including performance metrics) may be refined, as necessary, as part of the County's approval process, to reflect the relevant characteristics (e.g., land use mix) of each respective village.

Notwithstanding, the performance metrics identified in this TDM Plan shall be met in full, upon buildout of all development facilitated by the RMDP/SCP. In the event the maximum development potential authorized by CDFW's approvals is not achieved as part of the County's approval processes for the individual village-level projects, the VMT-reducing strategies and performance metrics may be adjusted to reflect the modified buildout projections while maintaining consistency with the core objectives of this TDM Plan (i.e., to reduce the number of single occupancy vehicle trips through the utilization of alternative forms of motorized and non-motorized transport and related strategies and, thereby, reduce total VMT and the corresponding GHG emissions).

3.1 Funding Options

The TMO and the long-term implementation of the TDM Plan, including transit, car share and bikeshare programs subsidies, will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay. The payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties. The applicant or designee will provide funding for infrastructure components, such as mobility hubs, traffic calming, the pedestrian network, bikeshare facilities, school buses, and NEV subsidies. As needed, the applicant, or its designee, also may subsidize TMO operation during the first years until revenues from assessments are sufficient to fund the annual TMO operating expenses.

3.2 Organizational Structure

As previously discussed, a non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to deliver the programs and services identified in this TDM Plan, as applicable.

3.3 TMO Creation Action Plan

It is estimated that the start-up activities to prepare for implementation of the TDM programs and strategies identified in this plan will begin approximately three months prior to issuance of the first building permit. The timing ensures that an organizational structure that facilitates the receipt of funds and the provision of applicable TMO services will be in place as soon as the first property owners and tenants move in. The TMO will be a non-profit organization. The governing body's membership gradually will expand to include a growing number of property owners as they begin occupancy at the Project Site. TMO creation steps are as follows:

- **Create a TMO and form a governing body:** If the TMO is a division of an existing entity, such as a master owners' association, this step simply involves formalizing and expanding a steering committee. If the TMO is envisioned as an independent non-profit organization, the steps for incorporating the entity are listed below.

- **Incorporation of the TMO (optional):** The process for incorporating a TMO is outlined below.

    - Draft and file the articles of incorporation
    - Recruit and appoint a Board of Directors
    - Draft by-laws and conflict of interest policy
    - Conduct initial board actions (election of board officers, approval of the by-laws and conflict of interest policy, and establishment of a bank account).
    - Obtain an employer identification number
    - File the initial registration form (Form CT-1) with the California Attorney General's Registry of Charitable Trusts
    - File the Statement of Information (Form SI-100) with the Secretary of State
    - Apply for federal tax exemption with the Internal Revenue Service (IRS) and receive a determination letter from the IRS
    - Apply for California tax exemption with the California Franchise Tax Board (FTB) and receive an affirmation of exemption letter from the FTB

3.4 Key Implementation Actions

Implementation of the TDM Plan shall be phased in, based on the mix of uses developed, occupancy rates, need, and demand. Additionally, in coordination with the County of Los Angeles, the applicant (or its designee) shall review the planned development located within the Project Site concurrent with the processing of County-level entitlements for each village. Each village's land use map, composition of land use categories, and geographic placement within the Project Site shall guide the determination of the precise implementation of the strategies identified herein. It is not anticipated that every village necessarily will implement each strategy enumerated in this TDM Plan (e.g., each village may not include its own mobility hub). Village-specific performance metrics and targets will be prepared in conjunction with the County's approval process for use in lieu of the overarching metrics and targets presented in Table 1. That said, the overall implementation of this TDM Plan on the Project Site is anticipated to facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

3.4.1 Start Up Activities

The start-up activities summarized below will be undertaken to prepare for TDM service delivery. The applicant, or its designee, will:

- Hire staff and establish the TMO office, including creation of a financial structure and accounting procedures

The applicant, or its designee, and TMO staff will proceed to:

- Create the TMO budget and ensure TDM program funding by finalizing assessment rates;
- Identify stakeholders and establishing the relationships necessary to successfully implement the TDM strategies;
- Finalize a business plan and create a detailed work plan;
- Create TMO branding and identity;
- Develop a marketing plan;
- Create a steering committee; and
- Establish monitoring and evaluation procedures.

3.4.2 Year One Activities – Based on development triggers

The activities described in this section prepare the TMO for effectively implementing its service when certain milestones are reached. These include employers and residents moving in, schools opening, and bikeshare and carshare systems launching. These activities do not necessarily happen during the first year of operation; instead, they are triggered by differing development milestones dependent upon the particular strategy and, generally, correspond to the first year of residential occupancy or the first year of school operation within the district unless otherwise noted. The timeline in section 3.5 below lists the triggers along with the corresponding strategies and actions. In Year One, the TMO will:

- Initiate the preparation of marketing materials, which may include new resident and new employee welcome kits, as well as general marketing materials;
- Establish an incentive structure for behavior-supportive subsidies, including prizes for drawings or giveaways to be used to incentivize and reward change from single occupant vehicle travel;
- Begin working with employers prior to their move to the Project Site;

- Conduct outreach to developers and property managers to ensure that preferential carpool parking, loading and passenger waiting zones and other end-of-trip facilities are implemented;
- Develop an effective system to administer payment of transit, bikeshare, and carshare program subsidies to employees and residents, as applicable;
- Develop a school travel planning strategy that will promote school bus service and encourage walking, biking and carpooling to school;
- Assess and employ tech-enabled mobility to provide functionalities such as trip planning, ridematching, ridehailing, trip tracking, rewards programs, and others;
- Begin implementation of monitoring and evaluation activities;
- Launch bikeshare program;
- Launch carshare program.

3.4.3 Ongoing Activities – Years 2 – 5

While specific implementation details will evolve over time and may be adjusted based on new strategies, technologies, or approaches that become available, these general categories will remain key components of program implementation during the first five years and beyond. During these years, TMO staff will:

- Administer transit/alternative transportation subsidies and introduce bikeshare and carshare subsidies as the programs are launched;
- Implement a residential engagement strategy to educate residents about alternative transportation options, available subsidies, and related programs;
- Implement an employer engagement strategy to educate both employers and their employees about the commute options, subsidies, and programs available to them;
- Administer school travel planning programs, such as school pools, walking, school bus, bike trains, incentives, and other programs available at that time; and
- Continue to monitor and evaluate TDM activities.

3.5 Timeline and Phasing

This timeline of TMO activities was developed to provide an estimate of when, during the development phasing process, certain actions need to begin in order to ensure service delivery as building occupancy occurs. The timeline may be adjusted based on changes to the TDM strategies.

Timeline	Development Triggers	Applicable Land Use				Strategy	Actions
		Residential	School	Retail	Office		
	Prior to issuance of first building permit for each applicable land use					TMO operations	TMO begins operations. Branding and marketing plan development begins.
						Required commute trip reduction program	TMO outreach to developers to ensure preferential parking, passenger loading for rideshare vehicles, waiting areas for rideshare
	Prior to occupancy for each applicable land use					TMO operations	Implement systems to deliver subsidies to residents and employees
						School bus program and travel planning	Coordinate school bus purchase with district, develop school travel planning program, implementation of programs
						Required commute trip reduction program	Pre-relocation employer outreach
						Alternative transportation subsidies - affordable housing	Market subsidies to affordable housing residents
						Alternative transportation subsidies - employees	Work with employers to market alternative transportation subsidies
						Alternative work schedules & telecommute program	General employer outreach, assistance to employers >100 employees, develop monitoring methods and begin tracking of implementation at large employer sites (>100 employees)
						Alternative work schedules & telecommute program	Residential outreach through welcome kits and marketing
						Required commute trip reduction program	Select and launch ridematching tool
						Tech-enabled mobility	Manage web site updates, app selection, distribution & marketing, etc.
	1,250 residential units in each village					Carshare program	Begin implementation of carshare program and promotion of subsidies to residents
						Bikeshare program	Begin implementation of bikeshare program and promotion of subsidies to residents

Activities that do not fall under the purview of the TMO, such as the review and approval of construction traffic management plans, inclusion of affordable housing, the development of a pedestrian network, traffic calming, and the transit network expansion, shall be incorporated into the County of Los Angeles' development review and approval activitiesand, in the case of transit expansion, coordinated and negotiated with City of Santa Clarita Transit.

4.0 Program Monitoring

The applicant (or its designee) and/or the TMO or equivalent management entity will track the progress towards meeting the performance metrics and targets identified in Table 1, RMDP/SCP TDM Plan Performance Metrics and Targets. Such monitoring includes verification of the installation of infrastructure components, payment of subsidies, and implementation of the various programs and services identified in this TDM plan. Progress will be monitored as identified in Table 1 to ensure that program goals are met and to inform the implementation of TDM strategies going forward.

Progress towards meeting the identified targets will be tracked via the following data collection mechanisms:

- Field verification: Field verification primarily will be used to verify installation of infrastructure components such as the Pedestrian Network, Traffic Calming, NEV travel network, Mobility Hubs, and Bikeshare Network. The field verification will be performed by the TMO or equivalent entity.

- Resident Surveys: The TMO or equivalent entity will conduct annual resident surveys to track the following metrics:
    - Percentage of workforce residents participating in an alternative work schedule;
    - Percentage of students arriving at school via school bus or non-motorized modes;
    - Percentage of households with carshare membership;
    - Percentage of households with a NEV; and
    - Percentage of below-market households with a subsidized transit pass.

- TMO Reports: The TMO or equivalent entity will prepare an annual report detailing its activities and accomplishments, including the establishment of and ongoing activities related to:
    - Required Commute Trip Reduction Program; and
    - Tech-enabled Mobility Program.

- Employer Reports/Surveys: Employers will submit an annual report to the TMO, or participate in an annual survey conducted by the TMO, as appropriate, to ensure the following metrics are tracked:
    - Percentage of employees participating in an alternative work schedule;
    - Percentage of employees receiving a discounted transit pass or other alternative transportation subsidy.

Additional methods listed in Table 1 include the review of partnership documents and reports from partnering agencies, and final as-built documents.

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #							
1	Integrate Affordable and Below Market Rate Housing	Because income has a statistically significant effect on the probability that a commuter will take transit or walk to work, affordable and below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit.	Percentage of deed-restricted, below market housing units	10% of total housing units upon full build-out of the development facilitated by the RMDP/SCP	Review of deed-restricted, below market housing units within the development divided by total number of housing units	Once after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
2	Pedestrian Network	Pedestrian facilities, such as sidewalks, paseos, and trails.	Pedestrian network build-out that provides internal pedestrian facilities and facilities that connect off-site	Full build-out of planned pedestrian network that provides internal and external pedestrian connections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections. These measures include, but are not limited to: count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.	Percentage of streets and intersections with a traffic calming improvement	100% of streets and intersections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
4	Transit Network Expansion	Extension of Santa Clarita Transit routes into Newhall Ranch.	Extension of transit system coverage throughout RMDP/SCP project area to each village, consistent with the Conceptual Transit Plan (or equivalent)	Extension results in 80% increase in Santa Clarita Transit system network coverage within the RMDP/SCP project area, as compared to the existing coverage provided within the project area	Transit Operator Reports	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
5	Alternative Work Schedules and Telecommute Program (Residential End)	High-speed internet available to residents and marketing efforts by the Transportation Management Organization (or equivalent entity).[6]	Percent of workforce residents participating in an alternative work schedule	10% of workforce residents participating in an alternative work schedule	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Internet speeds	Pre-wired residential access to high speed internet	Internet Service Provider Reports	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village

[6] When referred to in this table, TMO includes a Transportation Management Organization or an equivalent entity.

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #							
6	Required Commute Trip Reduction Program	Multi-strategy required program at larger employers that encompasses a combination of individual VMT reduction measures, such as ride-sharing, marketing, transit fare subsidy, preferential parking, and/or end-of-trip facilities. (This is neither intended to be an inclusive or exclusive list of potential measures.)	Program established	Establishment of a multi-strategy program that may include components such as preferential carpool parking, flexible work schedules for carpools, transit fare subsidies, ridematching, designation of a transportation coordinator, vanpool assistance, and bicycle end-trip facilities	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	Percent of employees participating in an alternative work schedule	10% of employees participating in an alternative work schedule	Employer Report or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
8	School Bus Program	Implement school bus service.	School Bus Program Established	Established as part of the development of each respective village	School District(s) report	Once as to each village, after build-out of each village is complete	Concurrent with the development of each respective village
			Percentage of students arriving at school via school bus or non-motorized modes	76% of students	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes or other alternative transportation subsidy for those employees whose employer does not participate in the Required Commute Trip Reduction (CTR) Program.	Fund a transit or alternative transportation subsidy program for 8.2% of all employees employed at Newhall Ranch whose employer does not participate in the CTR Program, at $2.98 subsidy per person per day.	8.2% of non-CTR Program employees	Employer Reports or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or other.	Provide infrastructure for carshare parking spaces at mobility hubs	Full build-out of supportive carshare network	Final as-built documents	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Carshare provider contracted to serve Newhall Ranch	Partnership with carshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
			Membership in carshare program	1% of residents participate in carshare program	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
11	NEV Strategies	Travel network that accommodates NEV use, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies is included in this strategy.	NEV travel network build-out	Full build-out of planned NEV travel network	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
			Percent of households with an NEV	20% of households	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within neighborhood and employment centers, consistent with the Conceptual Transit Plan (or equivalent).	Number of small mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare)	4 small mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Number of large mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare, designated park-and-ride spaces)	2 large mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Mobile Application implemented by TMO that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information	One TMO-implemented application	TMO Report	Annual updates and upgrades to application	Full development build-out of each village
			Website implemented by TMO for transportation information that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information	One TMO-implemented website	TMO Report	Annual updates and upgrades to website	Full development build-out of each village
14	Bikeshare	On-site availability of bikeshare bicycles throughout the project site with subsidized membership.	Provide infrastructure for up to 15 bikeshare stations at mobility hubs and other locations	Full build-out of planned bikeshare network	Field Verification	Once after full build-out of all development facilitated by the RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #							
			Bikeshare provider contracted to serve Newhall Ranch	Partnership with bikeshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
15	Transit Fare Subsidy - Below Market Rate Households	Discounted public transit passes to below market rate households.	Fund subsidized transit pass at $2.98 per day for residents in BMR households	14% of deed-restricted, below market rate housing units (up to 300 passes)	Resident Surveys	Annually after full build-out of all below market rate housing facilitated by RMDP/SCP	Full build-out of all below market rate housing facilitated by RMDP/SCP

APPENDIX F
NEWHALL RANCH GHG REDUCTION PLAN

Newhall Ranch
GHG Reduction Plan

I. OVERVIEW AND SUMMARY

The purpose of the Newhall Ranch GHG Reduction Plan (the "GHG Reduction Plan") is to facilitate the full reduction of Project[1]-related greenhouse gas ("GHG") emissions to zero by funding activities that directly reduce or sequester GHG emissions or, if necessary, obtaining approved carbon credits. This GHG Reduction Plan is organized as follows:

- Section II summarizes the process by which the Project applicant (or its designee) will seek to undertake or fund activities that directly reduce or sequester GHG emissions.

- Section III describes candidate activities for directly reducing or sequestering GHG emissions that the Project applicant is evaluating.

- Sections IV through VI outline the compliance options available to the Project applicant (or its designee).

- Sections VII and VII describe the compliance verification process for the GHG Reduction Plan.

Overall, the mitigation measures (GCC-1 through GCC-12) recommended for the Project and the implementation of this GHG Reduction Plan (GCC-13) are designed to substantially reduce the Project's GHG emissions at the local/regional level and within the State of California, as well as within the United States and internationally. The vast majority of investment in GHG emissions reduction activities covered by the mitigation measures (GCC-1 through GCC-12) and this GHG Reduction Plan (GCC-13) will occur within the County of Los Angeles and State California.

II. DIRECT REDUCTION ACTIVITIES

A. Description

The Project applicant (or its designee) will directly undertake or fund activities that will reduce or sequester GHG emissions (the "Direct Reduction Activities"). Under CEQA Guidelines Section 15126.4, subdivisions (c)(3) and (c)(4), respectively, a project's GHG emissions can be reduced by "[o]ff-site measures, including offsets that are not otherwise required" and "[m]easures that sequester greenhouse gases."

The Project applicant (or its designee) will work directly with third parties, including not-for-profits, non-governmental organizations ("NGOs"), project developers and project owners, to

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[1] The "Project" for purposes of this GHG Reduction Plan is the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan ("RMDP/SCP"). The Project's approval will facilitate land use development within the Newhall Ranch Specific Plan area, as well as the Entrada and Valencia Commerce Center planning areas.

achieve GHG emissions reduction or sequestration. All Direct Reduction Activities will be undertaken for the specific purpose of reducing the GHG emissions of the Project, and all Direct Reduction Activities will be confirmed by an independent, qualified third-party.

B. GHG Emissions Reductions Will Occur in Accordance with Approved Registry Rules

The Project applicant (or its designee) will list or register each Direct Reduction Activity with the Climate Action Reserve, the American Carbon Registry, the Verified Carbon Standard, the Clean Development Mechanism (each, a "Registry") or other comparable organization or program. In accordance with the applicable Registry requirements, the Project applicant (or its designee) will retain an independent, qualified third-party to confirm the GHG emissions reduction or sequestration achieved by the Direct GHG Reduction Activities against the applicable Registry protocol or methodology. The Project applicant (or its designee) will then apply for issuance of carbon credits in accordance with the applicable Registry rules.

C. Example Registries

The following paragraphs describe, in more detail, the four possible Registries identified above. In the event that these Registries cease to exist or are otherwise no longer available, the Project applicant (or its designee) would identify and work with entities that can perform the same functions.

Climate Action Reserve ("CAR"): The California Legislature established CAR in 2001 to encourage actions to reduce GHG emissions. CAR began as the California Climate Registry and developed protocols to track GHG emissions and reductions, and have those emissions verified and publicly reported. The California Climate Registry was renamed as CAR and expanded in 2008, and now plays a leading role in the carbon market. CAR has developed over 15 separate protocols for quantification and verification of GHG emissions reductions, and issued over 60 million carbon offset credits, known as "Climate Reserve Tonnes" or "CRTs." CAR is based in Los Angeles and has been approved by the California Air Resources Board ("CARB") as an official offset project registry for the State's Cap-and-Trade Program.

American Carbon Registry ("ACR"): ACR was founded in 1996 as a non-profit enterprise of Winrock International, a non-profit organization. ACR is a CARB-approved offset project registry for the State's Cap-and-Trade Program and has also developed its own carbon offset methodologies, such as methodologies for degraded wetlands and for avoided conversion of grasslands to crop production.

Verified Carbon Standard ("VCS"): VCS was founded in 2005 by the Climate Group, the International Emissions Trading Association and the World Economic Forum. Project developers are able to list projects on the VCS registry using a variety of protocols, including CAR protocols. VCS is a CARB-approved offset project registry for the State's Cap-and-Trade Program and has also developed its own carbon offset quantification methodologies.

Clean Development Mechanism ("CDM"): CDM is a carbon offsetting program established by the Kyoto Protocol to the United Nations Framework Convention on Climate Change. CDM approves carbon offset projects in conjunction with national authorities in countries that have entered into the Kyoto Protocol. Projects registered with CDM exist in economies in transition and developing countries. The GHG Reduction Plan will only utilize CDM to the extent that cook stove projects (see infra, Section IV.A) are used as Direct Reduction Activities.

III. OVERVIEW OF POTENTIAL DIRECT REDUCTION ACTIVITIES

The following is a description of Direct Reduction Activities that the Project applicant has identified on a preliminary basis for inclusion in the GHG Reduction Plan. The following list is illustrative only and the exact portfolio composition of the Direct Reduction Activities may differ over time as new project types may be added and certain opportunities identified below may not be realized.

A. Forest Conservation in California and the United States

Through working with a leading developer of forest carbon offset projects, the Project applicant is exploring opportunities involving the conservation of forest land and forest stocks for the purpose of sequestering GHG emissions. The developer would identify suitable forest land and then assist the Project applicant (or its designee) in its management of this land to maximize the forest and carbon stocks through afforestation, avoided conversion and improved management techniques.

Loss of forests or improper management of forests in California and the rest of the United States releases carbon emissions into the atmosphere that would otherwise have been sequestered in trees, soils, and understory plants in forests, which naturally absorb carbon dioxide from the atmosphere and store the gas as carbon.

Through sustainable management and protection, avoided conversion of forests to other uses, and reforestation, forests can increase their carbon storage compared to a business-as-usual scenario. The California Forestry Association recognizes that "healthy forests provide the state with clean water and air [and] thriving wildlife habitats."[2] The U.S. Forest Service recognizes the importance of forest restoration and protection through its "Integrated Resource Restoration" program, which aims to "re-establish a balance of nature needed for air, water, plants and animals to thrive" in the nation's forests through direct forest land management.[3] As evidenced by Governor Brown's central role in the creation of the Governors' Climate and Forests Task Force ("GCF"), a multi-national collaboration, which synchronizes efforts across jurisdictions to develop policies and programs that provide pathways to forest-maintaining rural development, California is making considerable efforts to broker the international accord to fight deforestation and climate change.

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2 California Forestry Association, "About Us," available at http://calforests.org/about/. Accessed: September 2016.

3 U.S. Forest Service, "Forests and Grasslands," available at http://www.fs.fed.us/managing-land/national-forests-grasslands. Accessed: September 2016.

The Project applicant is actively considering Direct Reduction Activities involving the forestry sector where the Project applicant (or its designee) could help conserve forest land or forest stocks for the purpose of sequestering GHG emissions.[4] The Project applicant (or its designee) may pursue opportunities that involve three types of forestry sequestration activities:

- Avoided conversion of forests: this activity involves the avoided de-forestation of forest land through a land purchase or, in the U.S., the creation of a conservation easement or other legally binding agreement.

- Improved forestry management: this activity may include increasing rotation ages to increase the overall age of the forest, increasing the stocking of trees on understocked areas, and increasing forest productivity by thinning diseased and suppressed trees.

- Afforestation: this activity involves the planting of new trees.

The applicable forestry sequestration protocols and methodologies provide strict criteria regulating the type of activities eligible to qualify as avoided conversion, improved forestry management or afforestation activities. For example, the use of non-native tree species in afforestation projects is restricted.

To implement these forestry Direct Reduction Activities, if ultimately pursued, the Project applicant (or its designee) would work with successful and experienced forestry carbon sequestration developers. These developers would identify forest land suitable for carbon sequestration projects.

Under a typical contractual structure, the Project applicant (or its designee) would purchase forest land from a forest owner to conserve or enhance forest stocks. It is possible, also, that the Project applicant (or its designee) would fund the sequestration activities by pre-paying the forest owner for the future sequestration. In both instances, the developer would subsequently assist the Project applicant (or its designee) in managing the forest land or assisting the forest owner so as to increase the forest and carbon stocks.

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[4] See, e.g., CAR, *Forest Project Protocol Version 3.3* (2012) (providing requirements and guidance for quantifying the net climate benefits of activities that sequester carbon on forestland); CARB, *Compliance Offset Protocol: U.S. Forest Projects* (2015) (the purpose of the protocol "is to quantify [GHG] emission reductions and [GHG] removal enhancements associated with the sequestration of carbon achieved by increasing and/or conserving forest carbon stocks"); UNFCC, *Afforestation and Reforestation Projects Under the Clean Development Mechanism* (2013) ("The monitoring report is based on actual data relating to the performance of the project. It provides evidence of the emission reductions or removals achieved by the project."); UNFCC, *Clean Development Mechanism AR-AMS0007: Afforestation and Reforestation Project Activities Implemented on Lands Other Than Wetlands* at 5 (2015) (describing accounting for carbon stock changes, emission sources and associated GHGs).

B. Clean Cook Stoves

Through a United Nations sponsored and verified program, the Project applicant is evaluating programs involving the funding of clean-burning cook stoves for underprivileged households in Africa (including in Zambia and Malawi). The clean cook stoves would reduce GHG emissions, as well as deliver many health-related co-benefits to their users. More than three billion people globally depend on burning woody fuels in archaic, 3-stone fires for cooking.[5] According to the World Health Organization, this primitive form of cooking results in over 4 million premature deaths worldwide every year.[6] More than 50% of premature deaths due to pneumonia among children under the age of 5 are caused by the particulate matter (soot) inhaled from household air pollution.[7] Other adverse health effects associated with biomass smoke exposure include stroke, chronic obstructive pulmonary disease, cardiovascular disease and lung cancer.[8] In Africa, more people die from exposure to cook stove smoke than from malaria, tuberculosis and HIV/AIDS, combined.

Inefficient cook stoves are also a significant contributor to GHG emissions and climate change. The need to gather high volumes of firewood also contributes significantly to deforestation and, consequently, climate change. Moreover, women and children must spend hours a day walking long distances for wood gathering or to purchase bundled wood, and are often exposed to assaults and other dangers. The time spent gathering wood deprives young children of time needed for schooling and education.

A single clean cook stove can save an average of two tonnes of carbon dioxide emissions per year, reduce household air pollution by 50%, and reduce the time spent gathering resources by 75%.

If this program is ultimately pursued, the Project applicant (or its designee) would provide the funding required to build, distribute and maintain cook stoves. The stove project developer would implement the project by providing in-person training on the manufacturing, operation and maintenance of cooking stoves. The owner and the location of each stove would be tracked and recorded in the project documents.[9]

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5 World Health Organization, "Household air pollution and health: Fact sheet N°292," (February 2016), available at: http://www.who.int/mediacentre/factsheets/fs292/en/. Accessed: September 2016.

6 Id.

7 Id.

8 Id.

9 See, e.g., C-Quest Capital Malaysia Global Stoves Limited, *Monitoring Report Form for CDM Programme of Activities: Improved Cookstoves Program for Malawi and Cross-border Regions of Mozambique* (2015) (listing GHG emissions reductions for roughly one-year period as 41,606 $MTCO_2e$); Earthhood Services Private Limited, *CDM Programme of Activities Issuance Request Form: Improved Cookstoves Program for*

C. Dairy Project Methane Capture

The Project applicant is exploring opportunities to reduce methane emissions from livestock in California and the United States. Working with a developer of dairy methane capture projects, the Project applicant (or its designee) would identify opportunities to fund the capture and destruction of methane emissions from livestock manure at suitable dairy farms, including in California.

Methane is the second most prevalent GHG emitted in the United States from human activities, and agriculture is the second largest source of methane emissions in the U.S. (after petroleum and natural gas systems).[10] California has the most dairy cows in the country and the highest aggregated dairy methane emissions.[11] California also has established a goal of reducing methane emissions from dairy manure management by at least 20 percent in 2020, 50 percent in 2025, and 75 percent in 2030.[12]

The Project applicant (or its designee) would provide the funding required to build and maintain methane capture and destruction equipment using established methodologies developed by CARB and/or CAR. The Project applicant (or its designee) also would explore opportunities for the beneficial use of the captured methane, such as for renewable electricity or biofuel production.

IV. PROJECT EMISSIONS

There are two types of GHG emissions that will result from the Project: (i) the construction and vegetation change emissions, and (ii) the operational emissions. The construction and vegetation change emissions include the GHG emissions during the construction phase of the Project. Operational emissions include the GHG emissions for the 30-year Project life.

The Project's mitigation program (i.e., GCC-1 through GCC-12) will mitigate the Project's GHG emissions below the CEQA significance thresholds. The remaining (post-mitigation) GHG emissions that must be reduced under the GHG Reduction Plan are estimated as follows:

- **Construction and Vegetation Change GHG Emissions –** Prior to obtaining grading permits for village-level development within the RMDP/SCP Project site, the incremental

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Malawi and Cross-border Regions of Mozambique (2015) (verifying reduction of 41,606 $MTCO_2e$); UNFCCC, Clean Development Mechanism AMS-II.G: *Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass* at 3 (2016) (describing utilization of energy efficient cook stoves to reduce GHG emissions).

10 U. S. Environmental Protection Agency, "Overview of Greenhouse Gases: Methane Emissions," available at https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane. Accessed: September 2016.

11 CARB, *Proposed Short-Lived Climate Pollutant Reduction Strategy* (April 2016), page 65.

12 Id. at page 66.

construction and vegetation change GHG emissions is based on the specific village-level development ("Incremental Construction GHG Emission").

- **Operational GHG Emissions –** Prior to obtaining building permits for an incremental level of development within the RMDP/SCP Project site, the incremental operational GHG emissions over the 30-year Project life associated with such building permits that must be reduced (the "Incremental Operational GHG Emissions") will be equal to the sum of: (1) the number of proposed residential units covered by the applicable building permit multiplied by 108.89 $MTCO_2e$; and (2) every thousand square feet ("TSF") of proposed commercial development covered by the applicable building permit multiplied by 506.86 $MTCO_2e$. For example, to obtain a building permit for 75 residential units and 40,000 square feet of commercial development, the Incremental Operational GHG Emissions would be: (75 units x 108.89 $MTCO_2e$/unit) + (40 TSF x 506.86 $MTCO_2e$/TSF) = 28,441 $MTCO_2e$.

The residential and commercial multipliers identified above may vary for a village-level project, as estimated in the CEQA document for the village-level project; however, in all cases, the remaining GHG emissions must be reduced fully.

V. COMPLIANCE OPTIONS – OPERATIONAL EMISSIONS

To satisfy this GHG Reduction Plan (GCC-13), the Project applicant (or its designee) must rely upon one of the following four compliance options described in this section, or a combination thereof (each, a "Compliance Option"). For each Compliance Option, all carbon credits will be issued by one of the Registries identified in Section III.C, above. Section IX below describes how carbon credits are issued and retired under such Registry requirements. Section VIII, below, describes how the Project applicant (or its designee) will verify completion of the Compliance Options.

Compliance Option No. 1 Undertake Direct Reduction Activities and Retire Confirmed Reductions Before Permit Application

Under Compliance Option No. 1, prior to obtaining building permits for an incremental level of development covered by the RMDP/SCP Project, the Project applicant (or its designee) will retire Confirmed Reductions (as defined below) generated by Direct Reduction Activities in an amount equal to the Incremental Operational GHG Emissions.

Under Compliance Option No. 1, the Project applicant (or its designee) will undertake or fund certain Direct Reduction Activities before obtaining a building permit and will retain an independent, qualified third-party to review such Direct Reduction Activities to: (1) confirm that they have been undertaken; and (2) estimate the associated GHG emissions reduction or sequestration that the Direct Reduction Activities will achieve in the future, using assumptions based on protocols and methodologies adopted by

Registries and governmental agencies ("Confirmed Reductions").[13] As described in Section VIII infra, a Coordinating Registry (as defined below) will verify the accuracy of the estimated Confirmed Reductions for each $MTCO_2e$ that is estimated to be reduced or sequestered.

Compliance Option No. 1 will ensure that the estimated GHG emissions reductions will occur before a comparable amount of estimated Project GHG emissions are emitted. Thus, the estimated GHG emissions reductions will always be equal to or outpace estimated Project GHG emissions as the Project is developed over time. The Registry-approved protocols will ensure an independent, qualified third-party confirms that the GHG emissions reduction activities and projects are implemented in accordance with the Registry-approved protocols.

As an example of how this Compliance Option No. 1 would apply to a clean cook stove distribution project described in Section IV.A above, the Project applicant (or its designee) would fund the distribution of clean cook stoves prior to building permit issuance. The Project applicant (or its designee) would then retain an independent, qualified third-party to confirm or "audit" on the ground using statistical samples that the stove distribution has, indeed, taken place and estimate the reduction of CO_2 emissions that would result from such stoves. This estimate would rely upon methodologies adopted by a Registry and take into account the expected life of cook stoves in the field. An independent, qualified third-party would then provide a technical report containing the results.

Compliance Option No. 2 Undertake Direct Reduction Activities and Retire and Guarantee to Retire Offsets Within 10 Years

Under Compliance Option No. 2, prior to obtaining building permits for an incremental level of development covered by the RMDP/SCP, the Project applicant (or its designee) will guarantee that, within 10 years of such building application, it will retire offsets generated by Direct Reduction Activities in an amount equal to the Incremental Operational GHG Emissions.

During the first 10 years following the building permit application, the Project applicant (or its designee) will offset, at a minimum, the GHG emissions every year by November 1 of the following year, using carbon offsets of the same or an earlier vintage year. (As discussed below in Section VIII, a Coordinating Registry will true up the GHG emissions and the retirements on an annual basis to verify that the Project applicant (or its designee) complies with this requirement.) For example, in connection with 100 $MTCO_2e$ of emissions released in 2021, the Project applicant (or its designee) will retire 100 carbon offset credits by November 1, 2022, at the latest. As an additional example, the Project

[13] The defined terms in this GHG Reduction Plan are provided for informational purposes only. The terms used to describe certain activities may change depending on the particular Registry or protocol being applied; however, the underlying approach and purpose of the action will be consistent with this GHG Reduction Plan.

applicant (or its designee) will retire carbon offset credits in a quantity equal to the Incremental Operational GHG Emissions estimated to take place in Years 10-20 by November 1 of Year 11 at the latest.

The guarantee will be a performance bond or similar security instrument of adequate size to ensure the guarantee (the "Guarantee").

Compliance Option No. 3 Undertake Direct Reduction Activities and Retire Carbon Offset Credits Before Permit Application

Under Compliance Option No. 3, prior to obtaining building permits for an incremental level of development covered by the RMDP/SCP Project, the Project applicant (or its designee) will retire offsets generated by Direct Reduction Activities in an amount equal to the Incremental Operational GHG Emissions.

Compliance Option No. 4 Purchasing Carbon Offsets Credits Issued by Registries on the Secondary Market

Under Compliance Option No. 4, prior to obtaining building permits for an incremental level of development covered by the RMDP/SCP Project, the Project applicant (or its designee) will purchase and retire carbon offsets that have been issued by one of the Registries in an amount equal to the Incremental Operational GHG Emissions. The Project applicant (or its designee) will rely on this Compliance Option No. 4 only to the extent that it is impracticable to fully offset Incremental Operational Emissions through the Direct Reduction Activities.

VI. COMPLIANCE OPTIONS – CONSTRUCTION EMISSIONS

To satisfy GCC-10 (construction GHG emissions), prior to obtaining grading permits for an incremental level of development covered by the RMDP/SCP Project, the Project Applicant (or its designee) must rely upon Compliance Option No. 3 or Compliance Option No. 4, described above in Section VI, or some combination thereof, to retire offsets in an amount equal to the Incremental Construction GHG Emissions.

VII. COMPLIANCE VERIFICATION

The Project applicant (or its designee) can verify compliance with GCC-10 (construction) or GCC-13 (operational) by either of the following options, or some combination thereof:

- Directly providing proof of retired carbon credits (e.g., the carbon credit retirement documentation) in a quantity equal to the Incremental Construction Emissions or Incremental Operational Emissions, as applicable; *or*

- Providing a GHG Reduction Credit (as defined below) issued by a Coordinating Registry (as defined below) that verifies the retirement of carbon credits using one or more Compliance Options in a quantity equal to the Incremental Construction Emissions or Incremental Operational Emissions, as applicable.

A. Compliance Options – Registry Confirmation Process

Before applying for a grading permit or a building permit, the Project applicant (or its designee) will designate a Registry or other independent, qualified third-party to act as a coordinating registry for the purpose of this GHG Reduction Plan (the "Coordinating Registry"). The Coordinating Registry will review the actions taken by the Project applicant (or its designee) in furtherance of the Compliance Conditions stated above and issue a notice for a certain quantity of credited GHG reductions or sequestration ("GHG Reduction Credits"). The GHG Reduction Credits will be a certificate issued on the letterhead of the Coordinating Registry signed by an officer of the Coordinating Registry that will clearly specify the following: (1) the applicable Compliance Option(s); and (2) the number of $MTCO_2e$ that were reduced by the Project applicant (or its designee) through the applicable Compliance Option(s).

Upon application by the Project applicant (or its designee) and before issuing a GHG Reduction Credit, the Coordinating Registry will perform the following in connection with each Compliance Condition:

Compliance Option No. 1	The Coordinating Registry will review the report prepared by the verification body retained by the Project applicant (or its designee) to confirm that it meets the requirements of Compliance Condition No. 1 and issue GHG Reduction Credits for the quantity of GHG reduction or sequestration quantified in the report.
Compliance Option No. 2	The Coordinating Registry will verify that the Project applicant (or its designee) has begun undertaking or funding certain Direct Reduction Activities and provided a Guarantee in accordance with Compliance Condition No. 2. The Coordinating Registry will issue GHG Reduction Credits for the total quantity of GHG reductions or sequestration subject to the Guarantee.
Compliance Option No. 3	The Coordinating Registry will confirm that the Project applicant (or its designee) has retired carbon offset credits associated with Direct Reduction Activities and issued in accordance with the applicable rules of a Registry. For example, if the applicable Registry issues notices of cancellation, the Coordinating Registry will review such notices to confirm they are valid.
Compliance Option No. 4	The Coordinating Registry will confirm that the Project applicant (or its designee) has retired carbon offset credits issued in accordance with the applicable rules of a Registry.

VIII. ADDITIONAL INFORMATION ON CARBON CREDITS

This Section of the GHG Reduction Plan provides additional information on the carbon offset credits referred to in the Compliance Options No. 2, 3 and 4. To ensure the environmental integrity and transparency of the GHG Reduction Plan, the Project applicant (or its designee) will be required to comply with the programs established by the Registries. Sections II.B and II.C above identify and describe such Registries.

Each Registry has adopted comprehensive requirements applicable to: (1) the types and location of activities eligible for carbon offset credits (the "Rules"); and (2) the quantification rules to calculate the number of carbon offset credits that result from a particular activity – those are the Registry, project-specific protocols or methodologies (the "Protocols"). As a general matter, the Rules and Protocols would require that a Project meet the following steps to offset GHG emissions:

1. **Listing or Registration.** Apply to list or register the proposed Direct Reduction Activity with the Registry. The Registry will review the application and accept it only if it complies with the applicable Registry requirements.

2. **Independent, Qualified Third-Party Confirmation of Reduction or Sequestration.** Once a Direct Reduction Activity has begun, the Registry will require the Project applicant (or its designee) to retain an independent, qualified third-party verification body to confirm the reduction or sequestration achieved by the Direct Reduction Activity. Each Registry has adopted stringent requirements applicable to the accreditation of verification bodies and only such accredited verification bodies are qualified to confirm and audit the activities under the applicable Registry rules. This process typically takes place on an annual basis. Activities undertaken in a given 12-month period are typically verified during the following 6-12 months. Most Registry Rules and Protocols require "boots on the ground" audits, although in certain instances desktop reviews may be sufficient.

3. **Issuance of Carbon Credits.** The final step under most Registry Rules and Protocols involves the issuance of the carbon credits. Registry Rules and Protocols require the Project applicant (or its designee) to apply for issuance and to provide the confirmation report prepared by the independent, qualified third-party. The Registry will typically review a confirmation report and, to the extent that the Registry finds that the report complies with the applicable Registry requirements, the Registry will issue the carbon credit to the account of the Project applicant (or its designee).

4. **Carbon Credit Retirement.** Each Registry has adopted rules and procedures governing the retirement or cancellation of carbon credits. Typically these rules or procedures involve the transfer of the carbon credit serial numbers or the transfer of the carbon credit serial numbers from a Registry account.

APPENDIX G
NEWHALL RANCH
BUILDING RETROFIT PROGRAM

<u>Newhall Ranch</u>
Building Retrofit Program

I. Benefits Of Improving Energy Efficiency Of Existing Buildings

The Newhall Ranch Building Retrofit Program (Retrofit Program) is designed to reduce greenhouse gas (GHG) emissions by funding the retrofit of existing buildings. Improving the energy efficiency of California's existing buildings has been identified as an important step towards reducing GHG emissions from the built environment.

The California Air Resources Board identified the need to improve the efficiency of existing buildings in the 2008 Scoping Plan: "While green building strategies are most easily integrated into new buildings, existing buildings offer the greatest potential for gains in efficiency."[1] Legislation has been enacted in furtherance of the Scoping Plan's framework for GHG emission reductions from existing development. For example, Assembly Bill (AB) 758, which was enacted into law in 2009, requires the California Energy Commission, in collaboration with the California Public Utilities Commission and other stakeholders, to develop a comprehensive program to achieve greater energy efficiency in the State's existing buildings.

Additionally, in October 2015, Senate Bill (SB) 350 was enacted into law. SB 350 includes a goal to double the energy savings in existing electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. SB 350 is consistent with one of California Governor Brown's climate goals, which calls for the doubling of energy efficiency savings in existing buildings by 2030.[2]

II. Implementation Requirements

A. Allowable Building Retrofits

Building retrofits covered by the Retrofit Program can include, but are not limited to: cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, lightbulb replacement), energy efficient appliances, energy efficient windows, insulation, water conservation measures, and any other similar retrofit measures associated with green buildings.

B. Planning Director Approval of NGO Retrofit Strategy

The Project applicant or its designee may implement the Retrofit Program in collaboration with one or more non-governmental organizations (NGOs) accepted by the Regional Planning Director for the County of Los Angeles (Planning Director). To collaborate with an NGO to implement this program, the Project applicant or its designee must submit a written request to the Planning Director with supporting documentation of: (i) the NGO's qualifications; and (ii) the NGO's strategy to implement the Retrofit Program by installing energy retrofits in homes, schools or other buildings in disadvantaged communities within Los

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1 CARB, 2008. *Climate Change Scoping Plan*, Appendix C, p. C-139.

2 Available at: http://www.arb.ca.gov/cc/pillars/pillars.htm. Accessed: September 2016.

Angeles County, consistent with this Retrofit Program ("NGO Retrofit Strategy"). The NGO Retrofit Strategy shall estimate the GHG reductions that will be achieved by the planned retrofit measures in order to demonstrate that the GHG reductions identified in Section II(D), below, will be achieved. The NGO Retrofit Strategy shall include estimated costs to achieve the GHG reductions. The NGO Retrofit Strategy may provide a range of potential retrofit measures that can be tailored to particular buildings (e.g., depending on the age, size and use of the building). The NGO Retrofit Strategy also can provide flexibility to prioritize certain retrofit measures, depending on the building stock that is available, and deemphasize or eliminate other retrofit measures that are not efficient or practical to implement. The Planning Director shall review and respond to any such request within 30 calendar days of its receipt. At any time, the Project applicant may submit amendments to or a new NGO Retrofit Strategy for approval by the Planning Director. An amended or new NGO Retrofit Strategy shall become effective upon approval or at an earlier date approved by the Planning Director.

C. Locational Restrictions

The Retrofit Program must be implemented within the geographic area under the jurisdiction of the County of Los Angeles and primarily within disadvantaged communities or other areas accepted by the Planning Director.

For purposes of the Retrofit Program, disadvantaged communities are considered to include: (i) census tracts with a median household income (MHI) at or below 80% of the state MHI; (ii) census tracts identified as among the most disadvantaged 25% of census tracts according to the Office of Environmental Health Hazard Assessment's CalEnviroScreen;[3] (iii) areas with at least 75% of public school students meeting eligibility criteria for free or reduced price meals; or (iv) areas that do not meet the above criteria, or where data are insufficient, but for which there is a quantitative assessment demonstrating a reasonable basis for why the community should be considered disadvantaged.[4]

The Project applicant or its designee, which may include an NGO, may submit a written request to the Planning Director to implement such building retrofits in other specified areas, so long as it meets the purpose of benefitting disadvantaged communities. The Planning Director shall review and respond to any such request within 30 calendar days of its receipt.

D. Phasing Requirements

The Project applicant or its designee must implement the Retrofit Program as described in this section. The Retrofit Program shall be phased to apply to each village-level project within the RMDP/SCP Project site.

Prior to obtaining building permits for 100 residential units or 100,000 square feet of commercial development for each village-level project, the Project applicant or its designee shall

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[3] Available at: http://oehha.ca.gov/calenviroscreen. Accessed: September 2016.

[4] *See* "Ensuring Disadvantaged Communities Fully Share Active Transportation Program Benefits" presentation, available at http://www.scag.ca.gov/Documents/atp031615_ATPBenefits.pdf, at page 7. Accessed: September 2016.

implement the proportional percentage of the Retrofit Program applicable to the particular village-level project. The GHG reductions required for a particular village-level project shall be calculated as follows:

- For the residential portion of the project, multiply the planned number of residential units for the village-level project by 0.0377 metric tons of CO_2e per residential unit.

- For the commercial portion of the project, multiply the planned commercial square footage for the village-level project by 0.0215 metric tons of CO_2e per thousand commercial square feet. (Commercial development, for purposes of this requirement, includes retail, light industrial, office, hotel and mixed-use buildings.)

- For the total GHG reduction obligation for a particular village-level project, sum the residential and commercial GHG reduction levels.

Prior to the issuance of building permits from the County of Los Angeles, the Project applicant or its designee shall provide proof of payment made to implement energy retrofit measures identified in an approved NGO Retrofit Strategy, where such payments shall be sufficient to implement measures projected to achieve the quantity of GHG emissions reductions required by the ratios stated immediately above, as calculated in accordance with the methodology and costs estimates contained in the approved NGO Retrofit Strategy. After such energy retrofit measures have been installed or implemented, the Project applicant or its designee, which may include an NGO, also shall provide confirmation to the County of Los Angeles that all such energy retrofit measures were installed or implemented consistent with the approved NGO Retrofit Strategy.

III. GHG REDUCTIONS FROM THE RETROFIT PROGRAM

Based on the proportional GHG reductions identified in Section II(D), the Retrofit Program would achieve 1,000 MT CO_2e per year of reductions if the maximum allowable development facilitated by the RMDP/SCP Project occurs.[5]

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[5] Ramboll Environ's analysis of the Building Retrofit Plan is supported by ConSol's *Energy Efficiency Upgrades for Existing Buildings: A GHG Emissions Mitigation Strategy* technical memorandum (September 2016).

APPENDIX H
FORECASTING ELECTRIC VEHICLE PURCHASES IN THE NEWHALL RANCH COMMUNITY

Prepared for
The Newhall Land and Farming Company
Valencia, California

Prepared by
Ramboll Environ US Corporation
San Francisco, California

Project Number
0534264Q

Date
September 2016

FORECASTING ELECTRIC VEHICLE PURCHASES IN THE NEWHALL RANCH COMMUNITY

RAMBOLL ENVIRON

CONTENTS

CONTENTS *(CONTINUED)*

TABLES

APPENDICES

1. INTRODUCTION

Research shows that a driver's decision to convert from an internal combustion engine vehicle (ICEV) to an electric vehicle (EV) is influenced by a number of factors, including – but not limited to – cost of ownership and operation, battery ranges, and concerns about access to charging infrastructure, as well as environmental awareness and social perceptions. This report describes how incentives, as defined to include financial purchase subsidies and charging infrastructure, are expected to accelerate the conversion to EVs in the vehicle fleet operated by the future residents of the Newhall Ranch planned community.

1.1 Background on the Newhall Ranch Community's Incentive Program

As background, Newhall Ranch is a proposed planned community located in an unincorporated portion of the Santa Clarita Valley (northern Los Angeles County, California). The community proposes to implement a number of commitments to further incentivize the use of EVs, including:

- Equipping each residence with a minimum of one single-port EV charging station that will achieve a similar or better functionality as a Level 2 charging station.
- Providing a $1,000 subsidy for 50 percent of the community's residences for the purchase of a zero emission vehicle, as defined by the California Air Resources Board.
- Equipping the community's parking areas for commercial buildings with EV charging stations that provide charging opportunities to 7.5 percent of the total number of required parking spaces. ("Commercial buildings" include retail, light industrial, office, hotel, and mixed-use buildings.) The EV charging stations will achieve a similar or better functionality as a Level 2 charging station.[1]
- Installing off-site EV charging stations in Los Angeles County that will service one parking space for every 15 on-site residential dwelling units, and one parking space for every 15,000 square feet of on-site commercial development. ("Commercial development" includes retail, light industrial, office, hotel, and mixed-use buildings.) The EV charging stations again will achieve a similar or better functionality as a Level 2 charging station.[2]

This report evaluates the effect of these commitments on the purchase of EVs by the community's residents.

1.2 Analysis Overview

The analysis presented in this report is based on economic principles of demand; i.e., people make purchases based on price, their income level, the price of substitutes (in this case, an

[1] In the event that the installed charging stations utilize more superior functionality/technology than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by electric vehicle charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour.

[2] See footnote 1; the same provision applies.

ICEV), expectations, and a variety of tastes and preferences. The approach to analyzing the impact of the incentives involves first establishing the number of EVs that might be expected to be purchased by the community's residents absent any additional incentives. The same kind of forecast is then developed for the population with the incentives in place. The difference between the two forecasts may be considered the result attributable to the incentives.

1.3 Terminology

There are many terms and abbreviations that researchers have used to refer to the different kinds of EVs available. For example, a hybrid electric vehicle is often referred to as a HEV, and a plug-in hybrid as a PHEV. Additionally, some researchers use the term battery electric vehicle and refer to BEVs; other researchers collectively refer to both plug-in electric vehicles and plug-in hybrid electric vehicles as PEVs. To simplify the phraseology used in this report, we will henceforth refer to any car that has a plug-in option (both fully electric and plug-in hybrids) as EVs.

1.4 Structure of the Report

Section 2 of this report reviews published literature on the factors that affect EV purchasing decisions, and research about how incentives have worked elsewhere to increase the rate of EV conversion. An approach to modeling the anticipated response to the Newhall Ranch community's incentives is presented in Section 3. Section 4 shows the results of the modeling analysis.

2. PUBLISHED RESEARCH ON ELECTRIC VEHICLE ADOPTION

This section describes relevant research on the factors that influence the decision to purchase an EV. Current market shares for EVs also are reviewed, along with discussion of published forecasts for future EV sales. Finally, the body of research that examines how government incentives have been provided to increase EV penetration is discussed. The totality of this literature and research provides an overview of how incentives function in the marketplace to increase overall EV sales.

2.1 Who Buys an Electric Vehicle and Why?

Existing research has identified a number of key characteristics and factors that impact if and when people purchase an EV. For example, one study revealed that, when asked about the critical factors that may influence the decision to purchase an EV, the highest percentage (63 percent) of respondents cited the ability to charge at home, with other factors including battery range, and total operating cost.[3] Other studies have identified that the decision to select EVs, as compared to ICEVs, is a function of cost, range, income of the buyer, driving habits, price of gas, recharging infrastructure, and 'greenness', including the influence of neighbors and friends. The research on the characteristics of EV drivers and the factors affecting purchasing decisions are summarized below.

2.1.1 Characteristics of EV Households and Drivers

Several studies analyze the characteristics of EV drivers to identify the commonalities amongst those who are likely to purchase an EV.

A 2013 study conducted by the Institute of Transportation Studies at UC Davis explored the characteristics of 1,200 households who purchased an EV in California during the 2011 and 2012 calendar years.[4] The study found that 96 percent of the EV owners lived in single-family homes, with 46 percent of the owners reporting annual incomes higher than $150,000 (which was the highest category included in the survey). The study found that purchasing an EV was linked, in most cases, with the installation of electric vehicle supply equipment (EVSE) at home, and the ability to plug the car into a unit for charging. Additionally, overall, 19 percent of the new EVs were purchased as additional vehicles, and not as replacement vehicles, in households that had more vehicles than drivers.

The UC Davis study also explored how EV owners compared to the general population, in terms of interest in reducing their contribution to global warming and other environmental issues. The study found that 60 percent of EV owners either had solar panels on their roofs, or were considering installing panels. This contrasts to a statewide average of less than 1 percent of housing units having rooftop solar panels.

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[3] Accenture. 2011. Plug In Electric Vehicles Changing Perceptions, Hedging Bets - Accenture end-consumer survey on the electrification of private transport. Available at: https://www.accenture.com/us-en/~/media/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Industries_9/Accenture-Plug-in-Electric-Vehicle-Consumer-Perceptions.pdf. Accessed: August 2016.

[4] Tal, Gil, Michael A. Nicholas, Justin Woodjack, and Daniel Scrivano. 2013. Who Is Buying Electric Cars in California? Exploring Household and Vehicle Fleet Characteristics of New Plug-In Vehicle Owners. Institute of Transportation Studies - University of California, Davis. Available at: https://merritt.cdlib.org/d/ark:%252F13030%252Fm56692z3/1/producer%252F2013-UCD-ITS-RR-13-02.pdf. Accessed: August 2016.

A 2011 study conducted by the University of Delaware, unlike the UC Davis study, did not find a correlation between income and EV purchase, but instead found that a person's propensity to buy an EV increases with youth, education, "green" life style, believing gas prices will rise significantly in the future, and living in a place where a plug is easily accessible at home.[5] The study also found that people were more motivated by expected fuel savings than by a desire to be "green" or help the environment.

2.1.2 Frequency of EV Use in Multi-Car Households

A 2013 survey conducted by the Union of Concerned Scientists (UCS) found that 64 percent of its respondents (all of whom were EV owners) lived in a household with 2 or more vehicles and preferentially used the EV.[6] This is consistent with a 2015 survey of EV enthusiasts, which reported that 79.4 percent of EV owners and potential owners had 2 or more vehicles in their households.[7] The same study showed that, in households with one EV and one ICEV, people favored the EV for driving, except if the trip involved: a) driving longer distances on weekends, b) hauling, or c) the needed to carry more than 5 passengers.[8]

A 2015 study from South Korea also is consistent with these findings, in that it concluded that households that had one (or more) EV and at least one ICEV all showed a decline in the daily distance driven by the ICEV, and an increase in daily distance driven by the EV (about 45 percent higher) after three months of EV ownership.[9] In addition, a 2013 survey from Norway showed that 90 percent of EV owners said that the EV car "Completely" or "To a High Degree" replaced their ICEV, and preliminary data from Ford also suggests that with time – six months – the frequency of use of the EV increases, and the ICEV use decreases.[10],[11]

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5 Hidrue, Michael K., George R.Parsons, Willett Kempton, and Meryl P.Gardner. 2011. Willingness to Pay for Electric Vehicles and their Attributes. Resource Energy Econ. doi:10.1016/j.reseneeco.2011.02.002. Available http://www.udel.edu/V2G/resources/HidrueEtAl-Pay-EV-Attributes-correctedProof.pdf. Accessed: August 2016.

6 Union of Concerned Scientists. 2013. Electric Vehicle Survey Methodology and Assumptions; American Driving Habits, Vehicle Needs, and Attitudes toward Electric Vehicles, December. Available at: http://www.ucsusa.org/sites/default/files/legacy/assets/documents/clean_vehicles/UCS-and-CU-Electric-Vehicle-Survey-Methodology.pdf. Accessed: August 2016.

7 Shahan, Zachary. 2015. Electric Cars: What Early Adopters and First Followers Want. Important Media, available at: http://cleantechnica.us2.list-manage.com/subscribe?u=a897522b53d0853c85abbf9fa&id=a264ba3c49. Accessed: August 2016.

8 UCS, 2013.

9 Hwang, Sang-kyu, and Sang-hoon Son. 2015. Electric Vehicle User Mobility Analysis with Dashboard Camera in Jeju Island, Korea. Paper presented at Electric Vehicle Symposium, EVS28, in Kintex, Korea, May 3-6, 2015.

10 Haugneland, Petter, and Hans Havard Kvisle. 2013. Norwegian Electric Car User Experiences, paper presented at EVS27, Barcelona Spain, November.

11 Castrucci Alexandria, Mike. 2015. Good Habits Pay Dividends for Electric Car Drivers. Posted on October 7, 2013. Available at: (http://www.mikecastruccialexandria.com/blog/electric-car-driving-habits/). Based on data from MyFord Mobile app. Available at: (https://www.myfordmobile.com/content/mfm/app/site/my-car/home.html). Accessed: August 2016.

2.1.3 Cost

Economic models of EV purchasing behavior suggest that price is the biggest barrier to adoption of EVs, with cost defined to include the initial purchase cost of the vehicle and the subsequent operating costs.[12]

Initially, the purchase price of an EV was about $8,000 to $10,000 higher than comparable ICEVs without incentives. However, since the introduction of the Ford Focus EV, Chevrolet Volt, and Nissan Leaf in 2011, the cost of each has declined by $10,000, $7,000, and $5,000 respectively by 2015.[13] Some of this downward price pressure has occurred as the competition has increased, and as the selection of EVs and number of manufacturers has increased.[14]

The demonstrated decline in purchase costs is also influenced, in part, by the declining production costs of EV batteries. More specifically, the historical cost trends for batteries show a strong downward trend, with one study showing that batteries for EVs averaged a roughly 14 percent annual cost decrease from 2007 to 2014.[15] Furthermore, the impact of learning-by-doing cost reductions (which are attributable to a doubling in EV battery production), is between six and nine percent. This has resulted in the industry-wide average cost of a battery pack declining from $1,000/kWh to $410/kWh (2007 to 2014), and an even greater reduction among market-leading battery EV manufacturers, to around $300/kWh.

The other primary cost associated with EVs is the operating cost, which is the cost of operating the EV as compared with an ICEV. Generally speaking, EV operating costs tend to be lower than those associated with ICEVs because electricity is cheaper than gas on a cost per mile basis. For example, a study prepared by the Idaho National Laboratory shows that operating an EV costs about 3.3 cents per mile, compared with about 11 cents per mile for an ICEV getting 22 miles per gallon assuming a gas price of $2.50 per gallon.[16] The comparison will be much starker if gas prices were to increase. For example, if fuel were to increase to $4.00 per gallon, the cost of fuel for the ICEV with 22 miles per gallon goes to about 18 cents per mile, while the EV cost is expected to stay under 4 cents per mile. Therefore, the price of gas and electricity is expected to influence the decision to purchase an EV due to their role in evaluating the comparative operating costs.

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[12] See Adepetu and Keshav, 2015, and also Coffman et al., 2015 for good reviews of the economic models of consumer decision making for EV purchases.

[13] Coffman, Makena, P. Bernstein, S. Wee. 2015. Factors Affecting EV Adoption: A Literature Review and EV Forecast for Hawaii, Report Number: HNEI-04-15, Hawaii Natural Energy Institute, University of Hawaii at Manoa, April. Available at: http://www.hnei.hawaii.edu/sites/www.hnei.hawaii.edu/files/EVTC_EV%20Adoption%20and%20Forecast%20for%20HI.pdf. Accessed: August 2016.

[14] California's South Coast Air Quality Management District recently published a "Clean Car Buying Guide" that provides detailed comparisons of all EV makes and models currently available. The guide is found at: http://www.aqmd.gov/docs/default-source/publications/aqmd-advisor/2016-buyers-guide.pdf?sfvrsn=4, Accessed: August 2016.

[15] Nykvist, B. and Nilsson, M. Rapidly falling costs of battery packs for electric vehicles. *Nature: Climate Change* (2015), 5, pg. 329-332.

[16] Idaho National Laboratory, Advanced Vehicle Testing Activity. Available at: https://avt.inl.gov/sites/default/files/pdf/fsev/costs.pdf. Accessed: August 2016.

2.1.4 Range Anxiety

The range that an EV can travel on one charge and the associated "range anxiety" is a key topic associated with the decision to purchase an EV. "Range anxiety" is the experience that EV drivers have when they lack confidence that their vehicle will have sufficient fuel or charge to complete a trip or route.

Studies have shown that about 59 percent of US commuters drive less than 40 miles each day and, as a result, are well–suited to EV ownership.[17] One study analyzed the behavior of Toronto's drivers and identified several strategies to instill confidence in their drivers.[18] The strategies included training drivers to understand EV capacity, to know where charging infrastructure was located, to learn driving methods to extend battery life, to start the day with a full charge, and to plan their daily routes with navigation tools to reduce the risk of unexpected extra travel.

With the increase in battery charge range on the near horizon and a strong trend in the same direction for the mid-term, and with the increasing presence of publicly available charging stations, the issue of "range anxiety" is expected to diminish in importance. For example, Tesla launched a new EV model advertising over 200 miles in range on a single charge, and a price of $35,000. Tesla accepted pre-orders for the vehicle and reportedly had sold 373,000 vehicles through pre-orders by May 15, 2016.[19] The Tesla Model 3s will be available late 2017 as well as the Chevy Bolt, which will have a similar price and range. Hence, with improving EV technology, "range anxiety" is expected to reduce in the future.

2.1.5 EV Charging Stations – Residential and Public

Numerous studies have shown that EV charging currently occurs primarily at home. While charging stations at work places and retail stores are becoming more widespread, most EV charging has historically taken place at home, and will continue to do so.[20] An average vehicle spends 90 percent of its time at home and work, and with over 70 to 80 percent of EV charging typically occurring at home, the remaining charging primarily occurs at a workplace.[21,22] Both strategies are needed, however, to support EV adoption, and a reasonable assumption for strategic planning is that home charging will continue to be the preferred approach for future EV owners.[23]

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17 UCS, 2013.

18 Toronto Atmospheric Fund. 2015. Fleetwise EV300 Findings Report on EV Usage in Sixteen GTA Fleets, June. Available at: http://taf.ca/wp-content/uploads/2014/09/FleetWise-EV300-Findings-Report-16-June-2015.pdf. Accessed: August 2016.

19 Lambert, Frank. 2016. Tesla has 373,000 Model 3 reservations as of May 15, after 8k cancellations and 4k duplicates, Electrek, May. Available at: https://electrek.co/2016/05/18/tesla-model-3-reservations-cancellations-duplicates/. Accessed: August, 2016.

20 Holland, B. 2013. How important is charging infrastructure to EV adoption? GreenBiz. January 17. Available at: (https://www.greenbiz.com/blog/2013/01/17/how-important-charging-infrastructure-ev-adoption). Accessed: August 2016.

21 Holland, B. 2013. How important is charging infrastructure to EV adoption? GreenBiz. January 17. Available at: (https://www.greenbiz.com/blog/2013/01/17/how-important-charging-infrastructure-ev-adoption). Accessed: August 2016.

22 Leemput, N. et al. 2015. MV and LV Residential Grid Impact of Combined Slow and Fast Charging of Electric Vehicles. Energies (2015), 8, 1760-1783. http://www.mdpi.com/1996-1073/8/3/1760. Accessed August 2016.

23 In a 2014 assessment of infrastructure for the California Energy Commission, the authors analyzed two charging infrastructure paths forward, both emphasizing the dominance of home charging. Melaina, Marc, Michael Helwig. (National Renewable Energy Laboratory). 2014. California Statewide Plug-In Electric Vehicle

Research also shows that access to charging infrastructure at home is an important factor in the decision to purchase an EV. Hirdue et al. (2011) found that the availability and accessibility of a plug at home increases a person's propensity to buy an EV.[24] The 2013 UC Davis study discussed above also revealed that purchasing an EV is associated, in most cases, with the installation of EVSE at home and the ability to plug the car into power for charging.[25]

Another study also identified the importance of residential parking and charging, suggesting that:

- Fleet penetration of EVs beyond 22 percent will require residential infrastructure investment to increase access to outlets near home parking;
- Fleet penetration beyond 39 percent may require significant residential infrastructure investment because many households will need to upgrade their electrical infrastructure to charge multiple vehicles;
- Fleet penetration beyond 47 percent will require residential charging to be available for renters; and
- Fleet penetration beyond 56 percent may require not only new chargers but also additional residential parking, with associated logistics, space implications, and environmental impacts.[26]

The Newhall Ranch community's proposal to install charging stations in residential areas, therefore, will address an important factor to facilitate the level of conversion to EV.[27]

Charging stations outside the home are also critical to EV conversion. In one survey, 37 percent of respondents agreed with the statement that "having access to plug-in electric vehicle charging at work would increase the likelihood of considering a plug-in electric vehicle in my next purchase."[28]

Sierzchula et al. analyzed the impact of policies on EV adoption in 30 countries and found that an increase in public charging infrastructure was the strongest indicator of an increase

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Infrastructure Assessment. California Energy Commission. Publication Number: CEC-600-2014-003.Available at: http://www.energy.ca.gov/2014_energypolicy/documents/2014-06-05_workshop/summary_pev_infrastructure_report.pdf. Accessed August 2016.

[24] Hidrue, M.K., G.R. Parsons, W. Kempton, and M.P. Gargner. 2011. Willingness to pay for electric vehicles and their attributes. Resource Energy Econ. doi:10.1016/j.reseneeco.2011.02.002. Available at: (http://www.udel.edu/V2G/resources/HidrueEtAl-Pay-EV-Attributes-correctedProof.pdf). Accessed: August 2016.

[25] Tal, G., M.A. Nicholas, J. Woodjack, and D. Scrivano. 2013. Who Is Buying Electric Cars in California? Exploring Household and Vehicle Fleet Characteristics of New Plug-In Vehicle Owners. Institute of Transportation Studies at University of California, Davis. Research Report – UCD-ITS-RR-13-02. February. Available at: https://merritt.cdlib.org/d/ark:%252F13030%252Fm56692z3/1/producer%252F2013-UCD-ITS-RR-13-02.pdf. Accessed: August 2016.

[26] Traut, E.J., T.C. Cherng, C. Hendrickson, and J.J. Michalek. 2013. US Residential Charging Potential for Electric Vehicles. Transportation Research Park D 25, 2013 139-145. Available at: http://www.cmu.edu/me/ddl/publications/2013-TRD-Traut-etal-Residential-EV-Charging.pdf. Accessed: August 2016.

[27] For a good discussion of how EV drivers can use and benefit from public charging infrastructure, see SCAG's Southern California Plug-in Electric Vehicle Readiness Plan, December, 2012. Available at: https://www.scag.ca.gov/Documents/SCAG-Southern%20CA%20PEV%20Readiness%20Plan.pdf

[28] UCS, 2013.

in EV market share.[29] Specifically, they found that each additional charging station per 100,000 residents increased EV market share by 0.12 percent, and that charging station infrastructure was as effective (if not more) than financial incentives in explaining EV market behavior and trends. Sierzchula et al. relied upon data collected in 2012. At that time, Norway had the highest intensity of charging stations (25 stations per 100,000 people), and also the highest EV adoption rate at just over three percent. The next two highest charging station intensity rates were seen in the Netherlands and Estonia, which also had two of the next three highest rates of EV adoption. The exception was Japan, which also had a high EV adoption rate, but a slightly lower intensity of charging infrastructure per 100,000 people.

2.1.6 Technology Diffusion Impact

The pace of diffusion of a new technology has been studied relative to EV adoption. As there is increased awareness and visibility of EVs (as more and more are driven), more people see neighbors and friends successfully adopting EVs, and fewer perceived barriers remain.[30] This phenomenon has been termed, among others, as 'social networks' or the 'neighborhood effect.'[31, 32] Also, as the number of EV models for purchase increases, Sierzchula et al. found that there is a positive correlation with the rate of EV conversion.[33] Although causation could be explained in either direction, it is not surprising that consumers are more likely to purchase an EV when there are more EV models available for purchase. Observing a wide range of EV options in the market causes EVs to be perceived as a less risky choice than if there were only one EV model available for purchase.

The diffusion of innovation concept derives from work by Everett Rogers, who described the process through which populations adopt new technology.[34] Rogers hypothesized different technological adoption phases through time, first involving the "Innovators," about 2.5 percent of the population who is interested in a new idea and want to try it. A second group of about 13.5 percent of the population make up "Early Adopters," who follow the "Innovators," bringing the total of those who will ultimately adopt to about 16 percent. The next phase is often difficult to achieve, and thus getting from the "Early Adopters" to this "Early Majority Group" is often referred to as "the chasm." The "Early Majority" typically represents the next 34 percent. This is the point where the adoption rate reaches 50 percent of the number of people who will use the new technology. After the "Early Majority" group, the "Late Majority" and the "Laggards" are the final groups of people who convert.

Following this innovation diffusion model, one researcher found that besides price, usefulness for the environment, perceived risk, difficulty of use, knowledge and information, performance, fuel cost savings, and social prestige were all factors that

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[29] Sierzchula, W., Bakker, S., Maat, K., and van Wee, B. The influence of financial incentives and other socio-economic factors on electric vehicle adoption, Energy Policy (2014), 68, 183-194.

[30] Nelson-Nygaard Consulting Associates Inc. 2014. Removing Barriers to Electric Vehicle Adoption by Increasing Access to Charging Infrastructure. Seattle Office of Sustainability & Environment. Available at: http://www.seattle.gov/Documents/Departments/OSE/FINAL%20REPORT_Removing%20Barriers%20to%20EV%20Adoption_TO%20POST.pdf. Accessed: August 2016.

[31] He, L., M. Wang, W. Chen, and G. Conzelmann. 2014. Incorporating Social Impact on New Product Adoption in Choice Modeling: A Case Study in Green Vehicles. Transp. Res. Part D 32 421-434.

[32] See discussion in Coffman et al., 2015.

[33] Sierzchula et al. (2014).

[34] Rogers, Everett M. 2003. Diffusion of Innovations, fifth edition, The Free Press.

influenced the decision to purchase an EV.[35] Hence, social perceptions influencing the timing of a technology ‘catching on’ are important to consider.

Diffusion models have been widely used to capture the dynamics of automobile markets.[36] And, the recent history of EV adoption rates in Norway supports the use of the model in this context, with EV purchase rates moving from 3 to 6 to 14 to 23 percent over the course of 2012-2015.[37]

Another way to think about how and why some people wait to purchase an EV is described by Greene et al., who employ a diffusion model that captures the natural risk aversion that consumers have toward new technologies.[38] Their research explores how temporary policies that overcome transition barriers are needed in order to reduce risk aversion and induce positive feedback. Once these have been effective (they suggest after a decade or so), such policies are no longer needed. Coffman and Adepetu and Keshav also incorporate some form of technology diffusion in their research models of consumer behavior toward EV purchases.

2.1.7 Summary

The studies discussed above highlight the key factors that affect the transition to EVs. Demand for EVs is similar to other markets, and is a function of price, the income level of the buyer, tastes and preferences, and expectations. In addition, the published literature highlights that the ability to charge an EV at home (and away) and range anxiety are important factors influencing the decision to purchase an EV, and the pace of technology diffusion is related to social networks, neighbor effects, and visibility.

2.2 Market Share and Forecasts

Historical EV market shares and forecasts for future EV market shares establish important parameters in the modeling of EV adoption rates. (The rate of EV adoption is the percent of new cars purchased that are EV as a share of the total.) This section examines the recent history of EV adoption in California, and also covers a review of recent forecasts for the future.

2.2.1 Market Share for EVs

California is currently one of the largest markets for EVs in the United States, and has, in fact, been referred to as “America’s capital of plug-in cars.”[39] Based on sales figures tracked by the California Air Resources Board, Californians bought approximately 50

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[35] Mayshayeki, Morteza. 2012. Factors Influencing The Diffusion of Battery Electric Vehicles In Urban Areas, in Partial Fulfillment of a Master’s Thesis Presented to Ryerson University In partial fulfillment of the Requirements for the degree of Master of Management Science In the program of Management of Technology and Innovation.

[36] Coffmann et al., 2015.

[37] World’s Top 7 Electric Vehicle Adoption Countries for 2015, EV insider website, Based on data from EV Sales Blog. Available at: http://insideevs.com/worlds-top-7-electric-vehicle-adoption-countries-for-2015/. Accessed: August 2016.

[38] Reene, David L. and Liu Changzheng. 2014. Transitioning to Electric Drive Vehicles, Public Policy Implications of Uncertainty, Network Externalities, Tipping Points, and Imperfect Markets. White Paper 1:14, University of Tennessee, Baker Center for Public Policy, January.

[39] Cobb, Jeff. 2016. California Plug-in Sales Led the US Last Year with Nearly Five-Times Greater Market Share. HybridCars.com. February. Available at: http://www.hybridcars.com/california-plug-in-sales-led-us-last-year-with-nearly-five-times-greater-market-share/. Accessed: August 2016.

percent of all EVs sold in the United States in 2014, and 55 percent in 2015.[40] Table 1 presents the market share of EVs in California and the United States over the last few years. These are calculated as the share of new cars in a given year that are electric. The table shows that EV sales, as a share of all new cars, dropped slightly in 2015 both nationally and in California, which appears to be due to overall drops in fuel prices. The actual number of EVs sold nationally was over 114,000 in 2015, with over 62,000 of those being sold in California. As shown in Table 1, the 3.03 percent market share of EVs in California is approximately four times higher than that in the United States, which was about 0.66 percent in 2015.

Table 1: Market Shares of Electric Vehicles in California and USA

Geography	Market Share of Electric Vehicles			
	2012	2013	2014	2015
California	1.31%	2.49%	3.22%	3.03%
USA	0.37%	0.62%	0.72%	0.66%

Sources: California New Car Dealers Association (CNCDA). February 2016. California New Vehicle Registrations Expected to Remain Above 2 Million Units in 2016. Registrations through December 2015 since 2011. Revised figures for 2014. Available at: http://www.cncda.org/CMS/Pubs/Cal%20Covering%204Q%2015.pdf. Accessed: August 2016.

Electric Drive Transportation Association (EDTA). 2016. Electric Drive Sales Dashboard. Sales figures sourced from HybridCars.com and direct reports submitted by EDTA member companies. Available at http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952#sthash.5QBifqpG.EyVW8gqf.dpuf and http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952. Accessed: August 2016.

2.2.2 Forecasts for EV Adoption

Forecasts for the pace of EV adoption in California have historically underestimated EV sales. For example, in July 2012, a forecast for EV sales was developed for the Southern California Association of Governments by UCLA. The results optimistically stated that, “EV sales in California could exceed 50,000 per year by 2019 and 150,000 by 2022.”[41] As

[40] Extrapolated from Data Provided in: California New Car Dealers Association (CNCDA). February 2016. California New Vehicle Registrations Expected to Remain Above 2 Million Units in 2016. Registrations through December 2015 since 2011. Revised figures for 2014. Available at: http://www.cncda.org/CMS/Pubs/Cal%20Covering%204Q%2015.pdf. Accessed: August 2016.

AND

Electric Drive Transportation Association (EDTA). 2016. Electric Drive Sales Dashboard. Sales figures sourced from HybridCars.com and direct reports submitted by EDTA member companies. Available at: http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952#sthash.5QBifqpG.EyVW8gqf.dpuf and http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952. Accessed: August 2016.

[41] Williams, Brett, J.R. DeShazo, and Ayala Ben-Yehuda, Early Plug-in Electric Vehicle Sales: Trends, Forecasts, and Determinants. Report prepared for the Southern California Association of Governments (SCAG), but the

mentioned above, sales in California were over 62,000 in 2015, thereby exceeding UCLA's projections four years ahead of schedule.

More recent forecasts predict higher EV penetration levels, with adoption to be moving out of the "Early Adopters" phase and into the "Early Majority" phase sooner rather than later. Specifically, one forecast for global sales developed by Bloomberg New Energy Finance (BNEF) anticipates that global EV sales will be 35 percent of new car sales by 2040.[42] Another recent forecast, developed by Navigant Consultants, projects that EV sales will increase in California by just under 70 percent annually for the years 2016 through 2018, and then by about 16 percent per year from 2019 through 2022, resulting in EV sales of over 500,000 in California by 2022.[43] Both the Navigant and BNEF forecasts were produced after the news that Tesla had taken 400,000 pre-orders for their new longer battery charge Tesla Model 3s, which suggests that the rate of increase in the EV market share could be as high as these estimates in the coming years.

2.2.3 Summary

The understanding of the historical EV market share and forecasts for future EV market share establish important parameters in the modelling of EV adoption rates. California's historical EV market share data establishes a baseline for expectations of conversion to EV. For the purpose of this report, emphasis is placed on the forecasts for California from Navigant Consulting, which suggest that a rapid increase in EV purchases is underway in 2016, with sales increasing from just over 62,000 in 2015 to over 500,000 in 2022.

2.3 How Incentives Work

A variety of incentives have been developed and used by governments and other global organizations to encourage the conversion to EVs to achieve greenhouse gas emission reductions. The incentives serve to reduce the purchase price of the vehicle, reduce ongoing operation and maintenance costs, expedite the industry's technological advancement, and/or address one of the preference issues, such as range anxiety.

Multiple studies suggest that there is a positive correlation between incentives and the conversion to EV. The primary and traditional incentives mechanisms are purchase oriented, and include rebates, tax credits/incentives, and purchase subsidies.[44] In addition to these financial-based incentives associated with EV purchase, other incentives include increased access to public charging stations, free electricity while using public charging stations, and/or subsidies that make the ability to install a home charging station more affordable, all which result in positive correlation with increased conversion to EV. While

UCLA Luskin School of Public Affairs, available at: http://luskin.ucla.edu/sites/default/files/WilliamsEtAl2012-UCLA%20Luskin%20Deliverable%204.pdf. Accessed: August 2016.

[42] Electric Vehicles to be 35 % of Global New Car Sales by 2040, press release for study developed by Bloomberg New Energy Finance study, available at: http://about.bnef.com/press-releases/electric-vehicles-to-be-35-of-global-new-car-sales-by-2040/. Accessed: August 2016.

[43] Shepard, Scott, and Lisa Jerram. 2016 Executive Summary: Electric Vehicle Geographic Forecasts; Battery and Plug-In Hybrid Electric Vehicle Sales and Populations in North America, free excerpt of the larger report. Available at: https://www.navigantresearch.com/research/electric-vehicle-geographic-forecasts. Accessed: August 2016.

[44] Clinton, Bentley, Austin Brown, Carolyn Davidson, and Daniel Steinberg. 2015. Impact of Direct Financial Incentives in the Emerging Battery Electric Vehicle Market: A Preliminary Analysis. National Renewable Energy Laboratory. Department of Economics, University of Colorado – Boulder. February.

policies differ from state to state, each state shows a strong correlation between subsidies and rebates offered and an increase in the conversion to EV.[45]

Financial incentives are generally effective because the higher initial cost of EVs is often viewed as the most prominent market barrier.[46] When the State of Georgia eliminated their state-level tax credit for EVs, sales of EVs dropped 90 percent in 2015.[47] In May 2016, the International Council on Clean Transportation (ICCT) released a study that compared EV incentive programs in European countries, and also concluded that there is a correlation between higher levels of fiscal incentives and charging infrastructure and higher adoption of EVs.[48] Although the data set of policies gathered by the ICCT is too small for statistical inference, it is clear that the combination of significant fiscal incentives as a percent of total vehicle cost and a high number of charging stations per 1,000 vehicles registered (such as five or more as are found in Oslo and Amsterdam) led to the highest rates of EV purchases as a share of all new cars. (The ICCT study found that EV purchases were approximately 20 percent and 14 percent of all vehicle sales with the incentives in Oslo and Norway, respectively.)

As previously discussed, there are many factors that affect EV adoption; however, price remains the biggest barrier, and financial incentives must be large enough to spur real adoption.

- Jenn, Azevedo, and Ferreira found that, in order for incentives to have a significant effect on the EV market, the overall incentive must be over $1,000.[49] For incentives less than this, the incentive has an insignificant effect on consumer behavior.
- Gallagher et al. found that a tax incentive equal to $1,000 brought about a five percent increase in EV sales, based on data from 2000 through 2006 comparing all states with incentive programs.[50]
- Adepetu and Keshav simulated results for adoption of EVs in Los Angeles, and found that, under a baseline scenario, the market share of EVs would increase from roughly three percent to around seven percent.[51] When offered a $2,000 rebate,

[45] DeShazo, J.R., CC Song, Michael Sin, and Thomas Gariffo. 2015. State of the States' Plug-in Electric Vehicle Policies, UCLA Luskin School of Public Affairs, March. Available at: http://innovation.luskin.ucla.edu/sites/default/files/EV_State_Policy.pdf. Accessed: August 2016.

[46] Yang, Zifei, P. Slowik, Nic Lutsey, Stephanie Searle. 2016. Principles for Effective Electric Vehicle Incentive Design. June 2016. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_IZEV-incentives-comp_201606.pdf. Accessed: August 2016.

[47] Caputo, Michael. 2016. Georgia EV Sales Sputter without Tax Credit, online article. Available at: http://www.marketplace.org/2016/01/08/world/georgia-ev-sales-sputter-without-tax-break. Accessed: August 2016.

[48] Tietge, Uwe, P. Mock, N. Lutsey, A. Campestrin. 2016. The International Council on Clean Transportation. Comparison of Leading Electric Vehicle Policy and Deployment in Europe. May 2016. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_EVpolicies-Europe-201605.pdf. Accessed: August 2016.

[49] Jenn, A., Azevedo, I., and Ferreira, P. 2013. The impact of federal incentives on the adoption of hybrid electric vehicles in the United States, Energy Economics. Available at: http://dx.doi.org/10.1016/j.eneco.2013.07.025. Accessed: August 2016.

[50] Gallagher, K. and Muehlegger, E. Giving green to get green? Incentives and consumer adoption of hybrid vehicle technology (2010), Journal of Environmental Economics and Management, 61(1), 1-15.

[51] Adepetu, Adedamola, and Srinivasan Keshav, 2015. The Relative Importance of Price and Driving Range on Electric Vehicle Adoption: Los Angeles Case Study. *Transportation,* DOI 10.1007/s11116-015-9641-y.

the EV share in 2018 of new car sales increased to 8.5 percent. This is equivalent to a 1.5 percent increase from the baseline scenario, or a 20 percent increase in EV market share. Similarly, a $4,000 rebate would increase the EV share of new car sales to ten percent in 2018 (a 40 percent increase), and a $2,000 rebate coupled with a quintupled battery size led to a 30 percent increase in adoption (or up to roughly nine percent of the new market share by 2018).

- Clinton et al. found that a tax credit of $1,000 stimulated a 2 to 10 percent increase in the rate of EV conversion.[52]

Incentives for related costs other than the EV vehicle purchase also have a positive effect to increase conversion to EVs. The Plug-in Electric Vehicle Owner Survey, managed by the Center for Sustainable Energy, highlighted the importance of subsidized or discounted chargers.[53] Of those with an installed Level 2 charger at home, 64 percent received a free or subsidized charger, and 80 percent of them found the importance of the subsidy to install a Level 2 charger influential. Another study revealed that 83.1 percent of the participants of a consumer survey on EVs stated that it would increase their comfort in purchasing or leasing a EV by “a lot” or would be “a deciding factor” if they have charging facilities at home for easy overnight charging.[54] This evidence suggests that investment in a residential charging infrastructure should result in increased conversion to EV.

Recent work from the ICCT found that there are specific principles that optimize the use of incentives for EV purchases.[55] First, incentives must be exceptionally visible and accessible to consumers, both in terms of their value and the time at which they are applied. Second, locations with a lack of infrastructure (charging stations) and unclear (poorly communicated or advertised) incentives have not seen as significant an uptake of EVs. Third, immediate rebates are the most effective at incentivizing consumers. Fourth, providing charging stations also serves as an immediate rebate and, in combination with effective notification to users, can provide another “incentive” to increase the conversion to EVs. As stated by the ICCT, “Rebates are more than twice as effective as tax credits in motivating consumers, and point-of-sale incentives can be an order of magnitude more effective.”[56]

2.3.1 Existing Federal Incentive Program

There have been numerous federal-level incentive programs for alternatively fueled vehicles. The Energy Improvement and Extension Act, enacted in 2008, was the first attempt by the federal government to provide incentives to stimulate the purchase of EVs.

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[52] Clinton, Bentley, Austin Brown, Carolyn Davidson, and Daniel Steinberg, 2015. Impact of Direct Financial Incentives in the Emerging Battery Electric Vehicle Market: A Preliminary Analysis. National Renewable Energy Laboratory. Department of Economics, University of Colorado – Boulder. February.

[53] California Center for Sustainable Energy (CCSE) and California Environmental Protection Agency - Air Resources Board (ARB). 2012. California Plug-in Electric Vehicle Owner Survey. Available at: https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California%20Plug-in%20Electric%20Vehicle%20Owner%20Survey%20Report-July%202012.pdf. Accessed: August 2016.

[54] Krupa, J.K., D.M. Rizzo, M.J. Eppstein, D.B. Lanute, D.E. Gaalema, K. Lakkaraju, and C.E. Warrender. 2014. Analysis of a Consumer Survey on Plug-in Hybrid Electric Vehicles. Volume 64 pages 14-31. Available at: http://www.sciencedirect.com/science/article/pii/S0965856414000500. Accessed: August 2016.

[55] Yang, Zifei, P. Slowik, Nic Lutsey, Stephanie Searle. 2016. Principles for Effective Electric Vehicle Incentive Design. June 2016. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_IZEV-incentives-comp_201606.pdf. Accessed: August 2016.

[56] Ibid

The program was amended in 2009 with the American Recovery and Reinvestment Act, and again in 2013 as part of the American Taxpayer Relief Act.

While there are no longer any federal programs incentivizing the purchase and ownership of hybrid vehicles, there are federal incentive programs for plug-in electric and plug-in hybrid/electric vehicles. For qualified vehicles acquired after December 31, 2009, the existing federal incentive program provides a base credit of $2,500. An additional $417 credit is available for a vehicle which draws propulsion energy from a battery with at least 5 kilowatt hours of capacity, plus an additional $417 for each kilowatt hour of battery capacity in excess of 5 kilowatt hours, up to a maximum of $7,500.[57]

These programs are structured so that credits begin to phase out once a given manufacturer has sold at least 200,000 qualifying vehicles, as determined on a cumulative basis for sales after December 31, 2009.[58] There are as many as 42 different makes and models of vehicles (manufactured by Ford, BMW, Fiat, Chevrolet, Honda, Kia, Mercedes, Nissan, Porsche, Toyota, Volvo, and Volkswagen, as well as VIA, Wheego and previously, Tesla) that would qualify for a tax credit of some amount.[59] According to recent IRS data, sales have not yet approached the threshold levels for most manufacturers.[60] The federal program is a *tax credit*. As a tax credit, the approved amount is deducted from the purchaser's total tax burden. If the credit holders total tax bill is less than the amount of the credit, the "credit" is lost and the credit cannot be forwarded to future tax years.

The federal incentive program also recognizes the importance of home charging in the decision to purchase an EV. EV drivers can take a tax credit of 30 percent off the purchase of home charging equipment, up to $1,000, currently through 2016 when the tax credit will expire.[61] Home charging hardware may cost up to $1,500 (including installation), with more economical chargers available for less than $1,000.[62] The estimated benefit of this tax incentive is on the order of a few hundred dollars.

2.3.2 Existing State Incentive Programs

A number of states, including California, offer additional incentives and rebates to motivate the conversion to EVs. The ICCT conducted two meta-studies in 2014 and 2015 analyzing the correlation between direct and indirect incentives across 13 states[63] and in 30 major

57 Internal Revenue Service. 2016. Plug-In Electric Drive Vehicle Credit (IRC 30D). Available at: https://www.irs.gov/Businesses/Plug-In-Electric-Vehicle-Credit-IRC-30-and-IRC-30D. Accessed: August 2016.

58 Ibid.

59 U.S. Department of Energy, Energy Efficiency & Renewable Energy and U.S. Environmental Protection Agency, Office of Transportation & Air Quality, The Official U.S. Government Source for Fuel Economy Information. Available at: http://www.fueleconomy.gov. Accessed: August 2016.

60 Internal Revenue Service. 2016. IRC 30D - Plug-In Electric Drive Motor Vehicle Credit Quarterly Sales. Available at: https://www.irs.gov/businesses/irc-30d-plug-in-electric-drive-motor-vehicle-credit-quarterly-sales. Accessed: August 2016.

61 Plugincars. 2016. Incentives for Plug-in Hybrids and Electric Cars, February 24. Available at: http://www.plugincars.com/federal-and-local-incentives-plug-hybrids-and-electric-cars.html. Accessed: August 2016.

62 Drive Clean. Charging Equipment Cost. Available at: http://driveclean.ca.gov/pev/Costs/Charging_Equipment.php. Accessed: August 2016.

63 Lingzhi Jin, Stephanie Searle, And Nic Lutsey. 2014. Evaluation Of State-Level U.S. Electric Vehicle Incentives**.** International Council on Clean Transportation 1225 Street NW, Suite 900 Washington DC 20005 USA

metropolitan areas.[64] Their analysis found that state incentives have promoted registrations of 700 to 3,500 EVs since 2011. The ICCT analysis considered incentive packages by type of incentive and by state, and compared the value of incentive(s) relative to the market share for EVs in a given state and to the national average. In the states with the three most aggressive combinations of incentive packages (CA, HI and OR, and WA and GA), the combined incentive packages resulted in EV conversion was two to four percent higher than the national average.

Within California, Governor Brown aims to encourage the deployment of 1.5 million zero emission vehicles in California by 2025.[65] The State is facilitating its achievement of this goal through a variety of financial incentives to reduce the difference in upfront cost between ICEVs and EVs. For example, the California Clean Vehicle Rebate Project (CVRP) currently provides a rebate of up to $6,500 for eligible individuals, subject to an income cap, and provides higher rebates to low and moderate-income consumers.[66]

2.3.3 Summary

Published literature establishes a positive correlation between incentives and conversion to EV. The primary positive effect results from reducing the cost of ownership and operation. More aggressive incentive programs have shown that greater incentives may further accelerate the conversion to EVs.

[64] Lutsey, Nic, Stephanie Searle, Sarah Chambliss, Anup Bandivadekar. 2015. Assessment Of Leading Electric Vehicle Promotion Activities In United States Cities. International Council on Clean Transportation 1225 Street NW, Suite 900 Washington DC 20005 USA.

[65] State of California Office of Governor. Executive Order B-16-2012. Available at: https://www.gov.ca.gov/news.php?id=17472. Accessed: August 2016.

[66] California Air Resources Board. 2016. Clean Vehicle Rebate Project. April. Available at: http://www.arb.ca.gov/msprog/aqip/cvrp.htm/. Accessed: August 2016. Similarly, the draft Mobile Source Strategy prepared by the California Air Resources Board for the South Coast Air Quality Management District's 2016 Air Quality Management Plan anticipates a robust suite of incentive funding to facilitate the penetration and advancement of zero and near-zero emission technologies and vehicles. Available at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/Draft2016AQMP. Accessed: August 2016. Additionally, as part of the June 2016 partial settlement between Volkswagen and the U.S. Environmental Protection agency, Volkswagen is required to invest $800 million in California to facilitate the installation of EV charging infrastructure and the promotion of EVs. Volkswagen's investment plans will be subject to review and approval by the California Air Resources Board. Available at: https://www.epa.gov/enforcement/volkswagen-clean-air-act-partial-settlement. Accessed: August 2016.

3. APPROACH

Ramboll Environ has developed a predictive model (see Appendix A) of the expected EV purchases that will occur at the Newhall Ranch community, based on the programs that the community will implement in order to promote the purchase of EVs. Please see Section 1.1, Background on the Newhall Ranch Community's Incentive Program, above for a description of those programs, which include the provision of EV purchase subsidies and a comprehensive EV charging station infrastructure network. The following is an overview of the model's development, which includes details regarding the calculations, data, and assumptions.

3.1 Overview of Approach

The basic development of the model includes the seven components summarized below.

1. Calculate the number of total residents that will live at the Newhall Ranch community by year.
   a. Calculations are based on the absorption schedule included in Appendix A.
2. Calculate the number of cars purchased by residents (households) each year.
   a. Calculations are based on the estimated number of drivers and the stock of cars in the Newhall Ranch community for all residents, and the percentage of drivers that purchase a car in any year.
3. Calculate the number of EVs owned by residents (households) each year.
   a. Calculations are based on data that includes EVs already-owned by residents prior to moving to the Newhall Ranch community, and data that indicates how many EVs may be purchased going forward.
   b. The number of EVs purchased is calculated as a percent of all cars purchased based on the published literature for anticipated EV sales (see Section 2.2, Market Share and Forecasts, above).
4. The percentage of all car purchases that are EVs is assumed to start at seven percent in 2020, and increase over time at a constant increase of 2.5 percent annually (see Section 2.2, Market Share and Forecasts, above).
   a. These assumptions are based on BNEF and Navigant studies, and the historical market information of EV purchases in California.
   b. The Newhall Ranch community's population is assumed to be similar to the population of California drivers in terms of distribution of income level and other preferences.
5. The EVs that would be purchased annually *without* the incentives are calculated by multiplying the total number of cars purchased in the Newhall Ranch community by the estimated EV purchase percentage for each year.
6. The total number of EVs purchased that are stimulated by the Newhall Ranch community's incentive program is estimated by three factors.

a. First, the effect of the $1,000 purchase subsidy and the installation of an in-home charging station (estimated at a value of $800) is considered.[67] Using a 10 percent increase per thousand dollars of stimulus, based on results from Adepetu and Keshay (2015), we assume a 19 percent increase in the rate of EV adoption due to these incentives. This result is also supported by research from Clinton et al. (2015).

b. Second, the effect of the additional installation of EV charging stations in the Newhall Ranch community is considered. Using results adapted from Sierzchula et al. (2014), the model assumes a 7.2 percent increase in the rate of EV adoption from the charging stations in the study area.[68] (While conservatively not considered in this analysis, the community's off-site installation of EV charging stations in the Los Angeles County area also is anticipated to beneficially improve EV adoption rates in that larger geographic area.)

c. Third, the effect of an accelerated technology diffusion path is considered, following the supportive scientific literature discussed above in Section 2.1.6, Technology Diffusion Impact, and as captured in modeling efforts by Coffmann (2015), and Adepetu and Keshav (2015). Due to the increased visibility of the Newhall Ranch community's programs, the social network and/or the neighbor effect, the pace of adoption is expected to be faster in the early years of the study (from 2020 to 2023) and then slow down. This will reflect the pace of adoption expected as the use of EVs moves from the "Early Adopters" phase into the "Early Majority" phase.

7. The total EV cars that may be purchased as a result of the Newhall Ranch community's program is calculated based on the difference between the EV cars purchased with implementation the Newhall Ranch program compared to the result without the program. The model represents the sum total effect of the program over the period of time that the Newhall Ranch community is anticipated to be built out (2030).

3.2 Vehicles Purchased by the Community

The vehicles purchased by the Newhall Ranch community are estimated based on a population estimate and published literature regarding vehicle purchasing trends.

Consistent with the Southern California Association of Governments data, the average household size in the Newhall Ranch community is assumed to be 3.15.[69] Factoring this into the number of households, we estimate that the Newhall Ranch community (Study Area) will have 63,000 residents (see Table 2).

Data regarding the proportion of an area's population that drives (and is assumed to own a vehicle) is based on the latest publicly available data from the Federal Highway

[67] Estimate developed from Plug-In Hybrid website, stating that the station itself runs on average about $600-$700; and that professional installation could be as low as $200. Therefore, a value of $800 is assumed to approximate a mid-point value estimate. See: http://www.plugincars.com/quick-guide-buying-your-first-home-ev-charger-126875.html.

[68] Sierzchula et al. found that an increase of one charging station per 100,000 people increases new EV sales by 0.12 percent. Given the population of Newhall Ranch (around 60,000), and given the 2,000 new charging stations anticipated to serve approximately 4,000 parking spots, this would produce a 108 percent increase in sales of EVs. However, as the Sierzchula et al. research analyzed countries with fewer than 100 charging stations per 100,000 in population, we limited this effect to the result that could be brought about by the presence of 100 public charging stations.

[69] SCAG, 2016. Data relied upon by for the 2016 RTP/SCS for Santa Clarita (2.94) and LA County (3.36). Available at: http://scagrtpscs.net/Pages/default.aspx. Accessed: August 2016.

Administration (FHA) regarding the number of drivers per 1,000 residents in each state.[70] This data indicated that, in 2014, there were 639 drivers per 1,000 residents in California (see Table 3). Applying that to the 63,000 residents in anticipated for the Newhall Ranch community, and assuming that all drivers own vehicles, it is estimated that approximately 40,257 people are drivers in the Study Area.

Table 2: Data and Estimation of Drivers in the Study Area

No. of Households	21,242
Average Number of Persons per Household	3.15
No. of Residents	66,912
No. of Drivers per 1,000 Residents in CA in 2014	639
No. of Drivers Among 66,912 Residents	**42,757**

Sources: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates. Available at https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2014/. Accessed: August 2016. And, U.S. Department of Transportation, Federal Highway Administration. 2014. Highway Statistics series of reports. Available at: www.fhwa.dot.gov/policyinformation/statistics.cfm. Accessed: August 2016.

To estimate the number of cars purchased in the Study Area each year, the analysis uses data on the number of new and used cars sold in 2014, and the total number of licensed drivers in the US in the same year. In 2014, approximately 16.17 million new cars were sold, and the number of used cars sold was just over 42 million.[71, 72] The number of licensed drivers were reported as over 214 million (see Table 3).[73] This suggests that 27 percent of licensed drivers purchase a car each year, or about one in four drivers. However, only about eight percent (one in 13 drivers) buys a new car in each year, while the rest buy used cars. Because the market for used EVs is smaller than the market for used ICEVs, we have adjusted the percent of the population that could potentially buy a new or used EV downward to 20 percent, which is considered a conservative assumption because the used EV market is expected to be more robust going into the future as the prevalence of used EVs increases. Table 3 shows that, using these assumptions, the number of drivers who purchase a car and, therefore, might purchase an EV ranges from 805 in 2020, to 8,051 in 2030, as more and more people move into the community.

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[70] U.S. Department of Transportation, Federal Highway Administration, 2014, Highway Statistics series of reports. Available at: www.fhwa.dot.gov/policyinformation/statistics.cfm. Accessed: August 2016.

[71] Davis, Stacy C., Susan W. Diegel, and Robert Boundy, 2015, Transportation Energy Data Book, Edition 34, Prepared for the Vehicle Technologies Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, August. Table 3-11. Available at: http://cta.ornl.gov/data/index.shtml. Accessed: August 2016.

[72] Webb, Tom. 2015. 2015 Used Car Market Report Year in Review and Outlook. Available at: http://www.niada.com/uploads/dynamic_areas/tRRlH6fX2WoqiCcaonlq/33/2015ManheimUsedCarMarketReport.pdf. Accessed: August 2016.

[73] U.S. Department of Transportation, Federal Highway Administration. 2014. Highway Statistics series of reports. Available at: www.fhwa.dot.gov/policyinformation/statistics.cfm. Accessed: August 2016.

Table 3: Estimation of Drivers and Car Buyers in the Newhall Community	
Total Licensed Drivers in the US (2014) - USA	214,092,472
Total New Vehicles Sold in 2014 - USA	16,171,000
Total Used Vehicles Sold in 2014 - USA	42,000,000
Percentage of Drivers that Buy a Car Each Year (based on 2014 data)	27%
Adjusted Percent to Account for Reduced Used Car Market for EVs	20%
Number of Drivers in Newhall Ranch in 2020	670
Number of Drivers in Newhall Ranch in 2030	42,757
Number of Drivers Who Might Purchase an EV in Newhall Ranch in 2020	**134**
Number of Drivers Who Might Purchase an EV in Newhall Ranch in 2030	**8,551**

Sources: U.S. Department of Transportation, Federal Highway Administration. 2014. Highway Statistics series of reports. Available at www.fhwa.dot.gov/policyinformation/statistics.cfm, and,
Davis, Stacy C., Susan W. Diegel, and Robert Boundy, 2015. Transportation Energy Data Book, Edition 34, Prepared for the Vehicle Technologies Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, August. Table 3-11, Available at: http://cta.ornl.gov/data/index.shtml. Accessed: August 2016.

4. RESULTS

Following the methodology outlined in Section 3, it is estimated that the Newhall Ranch community's incentive program will lead to a 48 percent increase in EV adoption. Specifically, without the incentive program, only 12,978 of the vehicles purchased and driven in the Newhall Ranch community by 2030 would be EVs. With implementation of the incentive program, 24,941 of the vehicles purchased and driven in the Newhall Ranch community by 2030 would be EVs, an increase of 11,963 vehicles. As a result, by 2030, nearly half of car purchases are expected to be EVs, and there will be an average of over one EV per household in the community.

Table 4: Expected EVs in Newhall Ranch Community by 2030 with Incentive Program

Total Cars Purchased by Newhall Land Residents	EVs in Community- No Additional Incentive	Additional EVs Purchased with Incentive Program	Percent Increase due to Incentives	Total EVs at in 2030	Average EV per Household
52,887	12,978	11,963	48%	24,941	1.17

The results in Table 4 represent the best estimate of EV adoption within the Newhall Ranch community given the incentive program, given our current understanding of EV purchases and our expectation that future events will more or less follow along with existing trends.

However, as the forecast begins in 2020, there is a possibility that unforeseen events could shift the anticipated purchasing behavior. Several alternative forecasts, therefore, have been developed to demonstrate how the results may change under different conditions. These alternative forecasts include:

1) **Greater Overall EV Conversion**: This forecast assumes a higher existing percentage of EV sales and ending percentage in 2030 compared to overall vehicle sales. Specifically, it is assumed that, in 2020, EV sales are nine percent of total car sales, and, in 2030, 34 percent of total car sales. This is an increase of two and four percent, respectively, from the base analysis;

2) **Lesser Overall EV Conversion**: This forecast assumes a lower existing percentage of EV sales and ending percentage in 2030 compared to overall vehicle sales. Specifically, it is assumed that, in 2020, EV sales are four percent of total car sales and, in 2030, 20 percent of total car sales. This is a decrease of three and ten percent, respectively, from the base analysis;

4) **Rapid Technology Diffusion**: This forecast assumes that the pace of technology diffusion is faster than the pace assumed in the base analysis, which peaks in 2024, and then begins to slow. Under the rapid technology diffusion alternative forecast, the rates are slightly higher through 2024, and continue to increase through 2025 and then begin to slow; and

3) **Delayed Technology Diffusion**: This forecast assumes that the pace of technology diffusion is slower than the pace assumed in the base analysis, which

peaks in 2024, and then begins to slow. Under the delayed technology diffusion alternative, the rate of increase is slightly lower through 2024 compared to the base analysis, and the peak does not come until 2027.

Results for these alternative forecasts are shown in Table 5. These alternatives demonstrate that the Newhall Ranch community's incentive program is likely to have a positive effect under different market conditions even if the predicted effect of the program varies. Two alternative forecasts may result in higher, or more rapid EV adoption than the current model captures, and two alternative forecasts may result in lower, or less rapid EV adoption than the current model captures.

Notably, the evaluation does not specifically factor in higher oil prices that may occur in the 2020 to 2030 time frame. If this occurs, it would be expected that this would result in more rapid adoption than what the current model anticipates. Similarly, the cost for electricity could have an effect both positive (e.g., if low cost renewable energy becomes more prevalent) or negative (e.g., if the cost of electricity increase).

Detailed annual results for the base analysis and each alternative forecast are shown in Appendix A to this report.

Table 5 Alternative Forecast Results

Forecast	Total Cars Bought by Newhall Land Residents	Total EVs in Community -No Additional Incentive	Additional EVs with Incentive Program	Percent Increase due to Incentives	Total EVs in 2030	Average EVs per Household
Greater EV Conversion	52,887	14,841	12,298	45%	27,138	1.28
Lesser EV Conversion	52,887	8,574	6,552	43%	15,126	0.71
Rapid Technology Diffusion	52,887	12,978	8,819	40%	21,797	1.03
Delayed Technology Diffusion	52,887	12,978	14,973	54%	27,951	1.32

5. REFERENCES

Accenture. 2011. Plug In Electric Vehicles Changing Perceptions, Hedging Bets - Accenture end-consumer survey on the electrification of private transport. Available at: http://www.accenture.com/us-en/~/media/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Industries_9/Accenture-Plug-in-Electric-Vehicle-Consumer-Perceptions.pdf. Accessed: August 2016.

Adepetu, Adedamola, and Srinivasan Keshav. 2015. The Relative Importance of Price and Driving Range on Electric Vehicle Adoption: Los Angeles Case Study. Transportation, DOI 10.1007/s11116-015-9641-y. 1-21.

Bloomberg New Energy Finance. 2016. Electric Vehicles to be 35% of Global New Car Sales by 2040. Available at: http://www.BNEF.com. Accessed: August 2016.

California Air Resources Board. 2016. Clean Vehicle Rebate Project. April. Available at: http://www.arb.ca.gov/msprog/aqip/cvrp.htm/ Accessed: August 2016.

California Center for Sustainable Energy (CCSE) and California Environmental Protection Agency - Air Resources Board (ARB). 2012. California Plug-in Electric Vehicle Owner Survey. Available at: http://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California%20Plug-in%20Electric%20Vehicle%20Owner%20Survey%20Report-July%202012.pdf. Accessed: August 2016.

California New Car Dealers Association (CNCDA). 2016. California New Vehicle Registrations Expected to Remain Above 2 Million Units in 2016. Registrations through December 2015 since 2011. Revised figures for 2014. February. Available at: http://www.cncda.org/CMS/Pubs/Cal%20Covering%204Q%2015.pdf. Accessed: August 2016.

Caputo, Michael. 2016. Georgia EV Sales Sputter without Tax Credit, online article. Available at: http://www.marketplace.org/2016/01/08/world/georgia-ev-sales-sputter-without-tax-break. Accessed: August 2016.

Castrucci Alexandria, Mike. 2015. Good Habits Pay Dividends for Electric Car Drivers. Posted on October 7, 2013. Available at http://www.mikecastruccialexandria.com/blog/electric-car-driving-habits/; Based on data from MyFord Mobile app. Available at: http://www.myfordmobile.com/content/mfm/app/site/my-car/home.html. Accessed: August 2016.

Clinton, Bentley, Austin Brown, Carolyn Davidson, and Daniel Steinberg. 2015. Impact of Direct Financial Incentives in the Emerging Battery Electric Vehicle Market: A Preliminary Analysis. National Renewable Energy Laboratory. Department of Economics, University of Colorado – Boulder. February.

Cobb, Jeff. February 2016. California Plug-in Sales Led the US Last Year with Nearly Five-Times Greater Market Share. HybridCars.com. Available at: http://www.hybridcars.com/california-plug-in-sales-led-us-last-year-with-nearly-five-times-greater-market-share/. Accessed: August 2016.

Coffman, Makena, P. Bernstein, S. Wee. 2015, Factors Affecting EV Adoption: A Literature Review and EV Forecast for Hawaii, Report Number: HNEI-04-15, Hawaii Natural Energy Institute, University of Hawaii at Manoa, April. Available at: http://www.hnei.hawaii.edu/sites/www.hnei.hawaii.edu/files/EVTC_EV%20Adoption%20and%20Forecast%20for%20HI.pdf. Accessed: August 2016.

Davis, Stacy C., Susan W. Diegel, and Robert Boundy. 2015. Transportation Energy Data Book, Edition 34, Prepared for the Vehicle Technologies Office, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, August. Table 3-11, Available at: http://cta.ornl.gov/data. Accessed: August 2016.

DeShazo, J.R., CC Song, Michael Sin, and Thomas Gariffo. 2015. State of the Sates' Plug-in Electric Vehicle Policies, UCLA Luskin School of Public Affairs, March. Available at: http://innovation.luskin.ucla.edu/sites/default/files/EV_State_Policy.pdf. Accessed: August 2016.

Drive Clean. Charging Equipment Cost. Available at: http://driveclean.ca.gov/pev/Costs/Charging_Equipment.php. Accessed: August 2016.

Electric Drive Transportation Association (EDTA). 2016. Electric Drive Sales Dashboard. Sales figures sourced from HybridCars.com and direct reports submitted by EDTA member companies. Available at: http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952#sthash.5QBifqpG.EyVW8gqf.dpuf and http://electricdrive.org/index.php?ht=d/sp/i/20952/pid/20952. Accessed: August 2016.

Forbes Magazine. Available at: http://www.forbes.com/sites/brookecrothers/2016/04/15/with-tesla-model-3-orders-nearing-400000-chevy-bolt-feels-heat-of-tesla-brand/#4a19c18c5349. Accessed: August 2016

Gallagher, K. and Muehlegger, E. 2011. Giving green to get green? Incentives and consumer adoption of hybrid vehicle technology, Journal of Environmental Economics and Management, 61(1), 1-15.

Haugneland, Petter, and Hans Havard Kvisle, 2013. Norwegian Electric Car User Experiences, paper presented at EVS27, Barcelona Spain, November.

He, L., M. Wang, W. Chen, and G. Conzelmann. 2014, Incorporating Social Impact on New Product Adoption in Choice Modeling: A Case Study in Green Vehicles. Transp. Res. Part D 32 421-434.

Hidrue, M.K., G.R. Parsons, W. Kempton, and M.P. Gargner. 2011. Willingness to pay for electric vehicles and their attributes. Resource Energy Econ. doi:10.1016/j.reseneeco.2011.02.002. Available at: http://www.udel.edu/V2G/resources/HidrueEtAl-Pay-EV-Attributes-correctedProof.pdf. Accessed: August 2016.

Holland, B. 2013. How important is charging infrastructure to EV adoption? GreenBiz. January 17. Available at: https://www.greenbiz.com/blog/2013/01/17/how-important-charging-infrastructure-ev-adoption. Accessed: August 2016.

Hwang, Sang-kyu, and Sang-hoon Son. 2015. Electric Vehicle User Mobility Analysis with Dashboard Camera in Jeju Island, Korea. Paper presented at Electric Vehicle Symposium, EVS28, in Kintex, Korea, May 3-6, 2015.

Idaho National Library. Available at: https://avt.inl.gov/sites/default/files/pdf/fsev/costs.pdf. Accessed: August 2016.

Internal Revenue Service. 2016. Plug-In Electric Drive Vehicle Credit (IRC 30D). Available at: https://www.irs.gov/Businesses/Plug-In-Electric-Vehicle-Credit-IRC-30-and-IRC-30D. Accessed: August 2016.

Internal Revenue Service. 2015. Plug-In Electric Vehicle Credits and Quarterly Sales. Available at: https://www.irs.gov/Businesses/IRC-30D-Plug-In-Electric-Drive-Motor-Vehicle-Credit-Quarterly-SalesYear 2015. Accessed: August 2016.

International Council on Clean Transportation. 2016. Comparison of Leading Electric Vehicle Policy and Deployment in Europe. May. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_EVpolicies-Europe-201605.pdf. Accessed: August 2016

International Council on Clean Transportation. 2016. Principles for Effective Electric Vehicle Incentive Design. June. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_IZEV-incentives-comp-201606.pdf. Accessed: August 2016.

Jenn, A., Azevedo, I., and Ferreira, P. 2013. The impact of federal incentives on the adoption of hybrid electric vehicles in the United States, Energy Economics, http://dx.doi.org/10.1016/j.eneco.2013.07.025. Accessed: August 2016.

Krupa, J.K., D.M. Rizzo, M.J. Eppstein, D.B. Lanute, D.E. Gaalema, K. Lakkaraju, and C.E. Warrender. 2014. Analysis of a Consumer Survey on Plug-in Hybrid Electric Vehicles. Transportation Research Part A 64 (2014) 14-34. Available at: http://www.sciencedirect.com/science/article/pii/S0965856414000500. Accessed: August 2016.

Lambert, Frank. 2016. Tesla has 373,000 Model 3 reservations as of May 15, after 8k cancellations and 4k duplicates, From Tesla Offering Prospectus, as quoted at Electrek , May.website, Available at: https://electrek.co/2016/05/18/tesla-model-3-reservations-cancellations-duplicates/. Accessed: August 2016.

Leemput, N. et al. 2015. MV and LV Residential Grid Impact of Combined Slow and Fast Charging of Electric Vehicles. Energies (2015), 8, 1760-1783. http://www.mdpi.com/1996-1073/8/3/1760. Accessed: August 2016.

Lingzhi, Jin Stephanie Searle, and Nic Lutsey. 2014. Evaluation of State-Level U.S. Electric Vehicle Incentives, White Paper for the International Council on Clean Transportation, October. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_state-EV-incentives_20141030.pdf. Accessed: August 2016.

Lutsey, Nic, Stephanie Searle, Sarah Chambliss, Anup Bandivadekar. 2015. Assessment Of Leading Electric Vehicle Promotion Activities In United States Cities. International Council on Clean Transportation 1225 Street NW, Suite 900 Washington DC 20005 USA.

Mayshayeki, Morteza. 2012. Factors Influencing The Diffusion of Battery Electric Vehicles In Urban Areas, in Partial Fulfillment of a Master's Thesis Presented to Ryerson University In partial fulfillment of the Requirements for the degree of Master of Management Science In the program of Management of Technology and Innovation.

Melaina, Marc, Michael Helwig. (National Renewable Energy Laboratory). 2014. California Statewide Plug-In Electric Vehicle Infrastructure Assessment. California Energy Commission. Publication Number: CEC-600-2014-003. Available at: http://www.energy.ca.gov/2014_energypolicy/documents/2014-06-05_workshop/summary_pev_infrastructure_report.pdf. Accessed August 2016.

Navigant Consulting. 2016. Electric Vehicle Geographic Forecasts Battery and Plug-In Hybrid Electric Vehicle Sales and Populations in North America, available at: http://www.navigantresearch.com/wp-content/uploads/2012/09/EVGEO-12-Executive-Summary.pdf. Accessed: August 2016.

Nelson-Nygaard Consulting Associates Inc. 2014. Removing Barriers to Electric Vehicle Adoption by Increasing Access to Charging Infrastructure. Seattle Office of Sustainability & Environment. Available at http://www.seattle.gov/Documents/Departments/OSE/FINAL%20REPORT_Removing%20Barriers%20to%20EV%20Adoption_TO%20POST.pdf. Accessed: August 2016.

Nykvist, B. and Nilsson, M. 2015. Rapidly falling costs of battery packs for electric vehicles. *Nature: Climate Change* , 5, pg. 329-332.

Plugincars. 2016. Incentives for Plug-in Hybrids and Electric Cars. February 24. Available at: http://www.plugincars.com/federal-and-local-incentives-plug-hybrids-and-electric-cars.html. Accessed: August 2016.

Reene, David L. and Liu Changzheng. 2014.Transitioning to Electric Drive Vehicles, Public Policy Implications of Uncertainty, Network Externalities, Tipping Points, and Imperfect Markets. White Paper 1:14, University of Tennessee, Baker Center for Public Policy, January.

Rogers, Everett. 2003. From Diffusion to Innovations. The Free Press.

SCAG. 2016. Data relied upon by for the 2016 RTP/SCS for Santa Clarita (2.94) and LA County (3.36). Available at (http://scagrtpscs.net/Pages/default.aspx). Accessed: August 2016.

Shahan, Zachary. 2015. Electric Cars: What Early Adopters and First Followers Want. Important Media, available at: http://cleantechnica.us2.list-manage.com/subscribe?u=a897522b53d0853c85abbf9fa&id=a264ba3c49. Accessed: August 2016.

Shepard, Scott, and Lisa Jerram. 2016 Executive Summary: Electric Vehicle Geographic Forecasts; Battery and Plug-In Hybrid Electric Vehicle Sales and Populations in North America, Navigant Consulting. . Available at: https://www.navigantresearch.com/wp-assets/brochures/DB-EVGEO-16-Executive-Summary.pdf. Accessed August 2016.

Sierzchula, W., Bakker, S., Maat, K., and van Wee, B. 2014. The influence of financial incentives and other socio-economic factors on electric vehicle adoption, Energy Policy, 68, 183-194.

South Coast AQMD. 2016. SCAQMD Advisor, 2016 Clean Car Buying Guide. Available at: http://www.aqmd.gov/docs/default-source/publications/aqmd-advisor/2016-buyers-guide.pdf?sfvrsn=4. Accessed August 2016.

State of California Office of Governor. Executive Order B-16-2012. Available at: https://www.gov.ca.gov/news.php?id=17472. Accessed: August 2016.

Tal, Gil, Michael A. Nicholas, Justin Woodjack, and Daniel Scrivano. 2013. Who Is Buying Electric Cars in California? Exploring Household and Vehicle Fleet Characteristics of New Plug-In Vehicle Owners. Institute of Transportation Studies - University of California, Davis. Available at: http://merritt.cdlib.org/d/ark:%252F13030%252Fm56692z3/1/producer%252F2013-UCD-ITS-RR-13-02.pdf. Accessed: August 2016.

Tietge, Uwe, P. Mock, N. Lutsey, A. Campestrin. 2016. The International Council on Clean Transportation. Comparison of Leading Electric Vehicle Policy and Deployment in Europe. May 2016. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_EVpolicies-Europe-201605.pdf. Accessed: August 2016.

Toronto Atmospheric Fund. 2015. Fleetwise EV300 Findings Report on EV Usage in Sixteen GTA Fleets, June. Available at: http://taf.ca/wp-content/uploads/2014/09/FleetWise-EV300-Findings-Report-16-June-2015.pdf. Accessed: August 2016.

Traut, E.J., T.C. Cherng, C. Hendrickson, and J.J. Michalek. 2013. US Residential Charging Potential for Electric Vehicles. Transportation Research Park D 25 (2013) 139-145. Available at: http://www.cmu.edu/me/ddl/publications/2013-TRD-Traut-etal-Residential-EV-Charging.pdf. Accessed: August 2016.

Union of Concerned Scientists (UCS). 2013. Electric Vehicle Survey Methodology and Assumptions; American Driving Habits, Vehicle Needs, and Attitudes toward Electric Vehicles, December. Available at: http://www.ucsusa.org/sites/default/files/legacy/assets/documents/clean_vehicles/UCS-and-CU-Electric-Vehicle-Survey-Methodology.pdf. Accessed: August 2016.

U.S. Department of Energy, Energy Efficiency & Renewable Energy and U.S. Environmental Protection Agency, Office of Transportation & Air Quality. The Official U.S. Government Source for Fuel Economy Information. Available at: http://www.fueleconomy.gov. Accessed: August 2016.

U.S. Department of Transportation, Federal Highway Administration. 2014. Highway Statistics series of reports. Available at: www.fhwa.dot.gov/policyinformation/statistics.cfm. Accessed: August 2016.

Webb, Tom. 2015. 2015 Used Car Market Report Year in Review and Outlook. Available at: http://www.niada.com/uploads/dynamic_areas/tRRlH6fX2WoqiCcaonlq/33/2015ManheimUsedCarMarketReport.pdf. Accessed: August 2016.

Williams, Brett, J.R. DeShazo, and Ayala Ben-Yehuda. Early Plug-in Electric Vehicle Sales: Trends, Forecasts, and Determinants. Report prepared for the Southern California Association of Governments (SCAG), by the UCLA Luskin School of Public Affairs. Available at: http://luskin.ucla.edu/sites/default/files/WilliamsEtAl2012-UCLA%20Luskin%20Deliverable%204.pdf. Accessed: August 2016.

World's Top 7 Electric Vehicle Adoption Countries for 2015, EV insider website, Based on data from EV Sales Blog., Available at: http://insideevs.com/worlds-top-7-electric-vehicle-adoption-countries-for-2015/. Accessed: August 2016.

Yang, Zifei, P. Slowik, Nic Lutsey, Stephanie Searle. 2016. Principles for Effective Electric Vehicle Incentive Design. June 2016. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_IZEV-incentives-comp_201606.pdf. Accessed: August 2016.

APPENDIX A
PURCHASING FORECAST MODEL

ASSUMPTIONS

Assumptions	Best Estimate	Greater EV Conversion	Lesser EV Conversion	Rapid Technology Diffusion	Delayed Technology Diffusion
New Households Annually \1	333-2,606	333-2,606	333-2,606	333-2,606	333-2,606
Persons per household \2	3.15	3.15	3.15	3.15	3.15
Vehicles per 1,000 people \3	639	639	639	639	639
Percent of drivers who purchase a vehicle per year \4	20%	20%	20%	20%	20%
2020 percent of vehicle purchases electric - trend \5	7%	9%	4%	7%	7%
2030 percent of vehicle purchases electric - trend \5	32%	34%	20%	32%	32%
Value financial incentive \7	$1,800	$1,800	$1,800	$1,800	$1,800
Increase in purchase rate due to financial incentive \8	1% - 6%	1% - 6%	1% - 4%	1% - 6%	1% - 6%
Increase in purchase rate due to charging stations \9	7% - 15%	7% - 15%	7% - 15%	7% - 12%	7% - 20%

Table Notes and References:

\1 - This range is based on the Project applicant's absorption schedule, and subject to additional calendar year specificity

\2 - SCAG, 2016. Data relied upon by for the 2016 RTP/SCS for Santa Clarita (2.94) and LA County (3.36). Available at: http://scagrtpscs.net/Pages/default.aspx. Accessed: August 2016.

\3 - Davis, Stacy C., Susan W. Diegel, and Robert Boundy, 2015, Transportation Energy Data Book, Edition 34, Prepared for the Vehicle Technologies Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, August. Table 3-11. Available at: http://cta.ornl.gov/data/index.shtml. Accessed: August 2016.

\4 - Revised downward, based on U.S. Department of Transportation, Federal Highway Administration. 2014. Highway Statistics series of reports. Available at: www.fhwa.dot.gov/policyinformation/statistics.cfm. Accessed: August 2016.

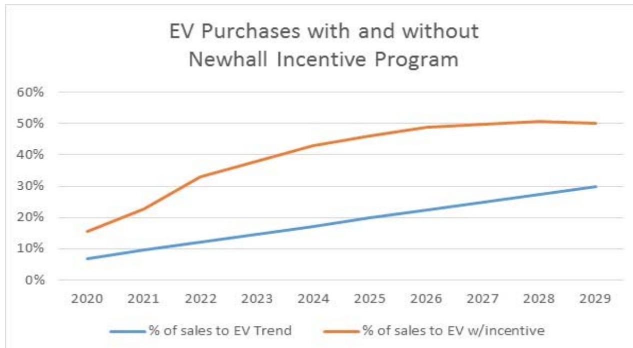
\5 - Based on BNEF and Navigant studies, and the historical market information of EV purchases in California and the population is assumed to be similar to the population of California drivers in terms of distribution of income level and other preferences;

\6 - This only reflects the benefit of the on-site residential EV chargers, and not those in the on-site commercial areas. Estimate developed from Plug-In Hybrid website, stating that the station itself runs on average about $600-$700; and that professional installation could be as low as $200. Therefore, a value of $800 is assumed to approximate a mid-point value estimate. See: http://www.plugincars.com/quick-guide-buying-your-first-home-ev-charger-126875.html.

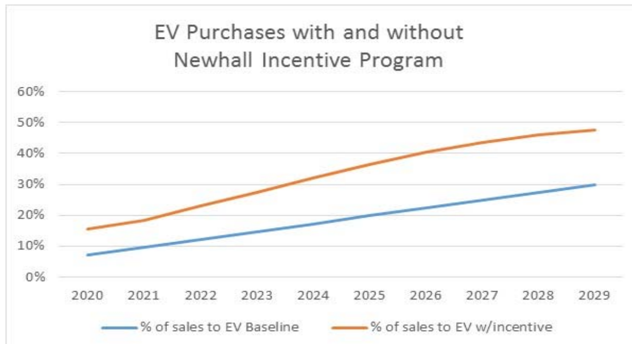
\7 - Based on relationship from Adepetu, Adedamola, and Srinivasan Keshav. 2015. The Relative Importance of Price and Driving Range on Electric Vehicle Adoption: Los Angeles Case Study. Transportation, DOI 10.1007/s11116-015-9641-y. 1-21.

\8 - Only includes the additional charging stations in the Newhall Ranch commercial areas. Based on Sierzchula, W., Bakker, S., Maat, K., and van Wee, B. 2014. The influence of financial incentives and other socio-economic factors on electric vehicle adoption, Energy Policy, 68, 183-194.

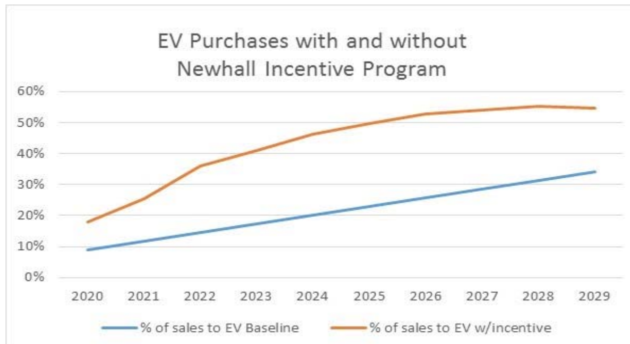
Best Estimate												
21,242 homes in the Development	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
Number of households occupied per year	333	1,713	2,987	3,420	2,117	1,853	1,875	2,606	2,460	1,343	535	**21,242**
Number of households	333	2,046	5,033	8,453	10,570	12,423	14,298	16,904	19,364	20,707	21,242	
Stock of Cars in Community	670	4,118	10,131	17,015	21,276	25,006	28,780	34,025	38,977	41,680	42,757	
Number of cars purchased each year	134	824	2,026	3,403	4,255	5,001	5,756	6,805	7,795	8,336	8,551	**52,887**
Percent of purchased cars EV Trend	7%	10%	12%	15%	17%	20%	22%	25%	27%	30%	33%	
Percent of purchased cars EV Incentive	15%	23%	33%	38%	43%	46%	49%	50%	51%	50%	50%	
EV Cars trend	9	79	245	499	733	989	1,285	1,694	2,139	2,501	2,784	12,958
Additional EVS due to Incentive Pgrms	11	109	423	791	1,096	1,311	1,535	1,692	1,815	1,674	1,505	11,963
Total EVS in Community Trend	29	128	394	913	1666	2675	3981	5695	7854	10375	13179	
Total EVS in Community w/Incentive	41	249	938	2247	4096	6416	9257	12663	16638	20832	25142	
								Percent of Cars EV Trend				**25%**
								Percent of Cars EV with Incentive				**47%**



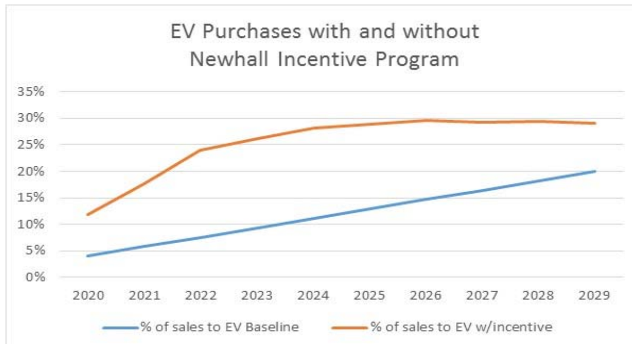
Delayed Technology Diffusion												
21,242 homes in the Development	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
Number of households occupied per year	333	1,713	2,987	3,420	2,117	1,853	1,875	2,606	2,460	1,343	535	**21,242**
Number of households	333	2,046	5,033	8,453	10,570	12,423	14,298	16,904	19,364	20,707	21,242	
Stock of Cars in Community	670	4,118	10,131	17,015	21,276	25,006	28,780	34,025	38,977	41,680	42,757	
Number of cars purchased each year	134	824	2,026	3,403	4,255	5,001	5,756	6,805	7,795	8,336	8,551	**52,887**
Percent of purchased cars EV Trend	7%	10%	12%	15%	17%	20%	22%	25%	27%	30%	33%	
Percent of purchased cars EV Incentive	15%	18%	23%	28%	32%	36%	40%	43%	46%	48%	49%	
EV Cars trend	9	79	245	499	733	989	1,285	1,694	2,139	2,501	2,784	12,958
Additional EVS due to Incentive Pgrms	11	73	219	437	635	835	1,032	1,261	1,437	1,474	1,404	8,819
Total EVS in Community Trend	29	128	394	913	1,666	2,675	3,981	5,695	7,854	10,375	13,179	
Total EVS in Community w/Incentive	41	213	698	1,654	3,042	4,886	7,224	10,199	13,795	17,790	21,998	
								Percent of New Cars EV at Baseline				**25%**
								Percent of New Cars EV with Incentive				**41%**



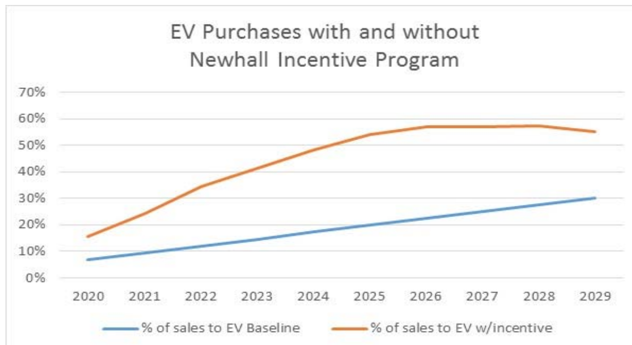
Greater EV Conversion												
21,242 homes in the Development	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
Number of households occupied per year	333	1,713	2,987	3,420	2,117	1,853	1,875	2,606	2,460	1,343	535	**21,242**
Number of households	333	2,046	5,033	8,453	10,570	12,423	14,298	16,904	19,364	20,707	21,242	
Stock of Cars in Community	670	4,118	10,131	17,015	21,276	25,006	28,780	34,025	38,977	41,680	42,757	
Number of cars purchased each year	134	824	2,026	3,403	4,255	5,001	5,756	6,805	7,795	8,336	8,551	**52,887**
Percent of purchased cars EV Trend	9%	12%	15%	17%	20%	23%	26%	28%	31%	34%	37%	
Percent of purchased cars EV Incentive	18%	25%	36%	41%	46%	50%	53%	54%	55%	55%	55%	
EV Cars trend	12	97	295	590	856	1,145	1,477	1,936	2,434	2,834	3,145	14,820
Additional EVS due to Incentive Pgrms	12	112	432	807	1,118	1,339	1,570	1,736	1,868	1,734	1,570	12,298
Total EVS in Community Trend	32	149	464	1,074	1,950	3,115	4,612	6,568	9,022	11,877	15,042	
Total EVS in Community w/Incentive	44	273	1,021	2,438	4,431	6,935	10,002	13,694	18,016	22,604	27,340	
								Percent of New Cars EV at Baseline				**28%**
								Percent of New Cars EV with Incentive				**51%**



Lesser EV Conversion												
21,242 homes in the Development	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
Number of households occupied per year	333	1,713	2,987	3,420	2,117	1,853	1,875	2,606	2,460	1,343	535	**21,242**
Number of households	333	2,046	5,033	8,453	10,570	12,423	14,298	16,904	19,364	20,707	21,242	
Stock of Cars in Community	670	4,118	10,131	17,015	21,276	25,006	28,780	34,025	38,977	41,680	42,757	
Number of cars purchased each year	134	824	2,026	3,403	4,255	5,001	5,756	6,805	7,795	8,336	8,551	**52,887**
Percent of purchased cars EV Trend	4%	6%	8%	9%	11%	13%	15%	16%	18%	20%	22%	
Percent of purchased cars EV Incentive	12%	18%	24%	26%	28%	29%	30%	29%	29%	29%	30%	
EV Cars trend	5	48	153	318	473	645	844	1,119	1,420	1,667	1,862	8,554
Additional EVS due to Incentive Pgrms	11	98	334	572	728	797	857	868	867	757	664	6,552
Total EVS in Community Trend	25	93	266	604	1,097	1,762	2,626	3,765	5,206	6,893	8,775	
Total EVS in Community w/Incentive	36	201	708	1,618	2,839	4,300	6,022	8,029	10,336	12,781	15,327	
								Percent of New Cars EV at Baseline				**16%**
								Percent of New Cars EV with Incentive				**29%**



Rapid Technology Diffusion												
21,242 homes in the Development	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Total**
Number of households occupied per year	333	1,713	2,987	3,420	2,117	1,853	1,875	2,606	2,460	1,343	535	**21,242**
Number of households	333	2,046	5,033	8,453	10,570	12,423	14,298	16,904	19,364	20,707	21,242	
Stock of Cars in Community	670	4,118	10,131	17,015	21,276	25,006	28,780	34,025	38,977	41,680	42,757	
Number of cars purchased each year	134	824	2,026	3,403	4,255	5,001	5,756	6,805	7,795	8,336	8,551	**52,887**
Percent of purchased cars EV Trend	7%	10%	12%	15%	17%	20%	22%	25%	27%	30%	33%	
Percent of purchased cars EV Incentive	15%	24%	34%	41%	48%	54%	57%	57%	57%	55%	54%	
EV Cars trend	9	79	245	499	733	989	1,285	1,694	2,139	2,501	2,784	12,958
Additional EVS due to Incentive Pgrms	11	121	453	913	1,316	1,709	1,993	2,179	2,317	2,103	1,858	14,973
Total EVS in Community Trend	29	128	394	913	1,666	2,675	3,981	5,695	7,854	10,375	13,179	
Total EVS in Community w/Incentive	41	261	979	2,411	4,480	7,197	10,496	14,389	18,866	23,490	28,152	
								Percent of New Cars EV at Baseline				**25%**
								Percent of New Cars EV with Incentive				**53%**



APPENDIX B
LIST OF PREPARERS

GRETCHEN GREENE, PH.D.

Senior Manager
Environmental Economics

Dr. Gretchen Greene has 20 years of diverse economics experience in natural resource, agricultural, and community economics. She works on complicated problems involving society and management of the natural environment. Dr. Greene has expertise in benefit cost analysis; ecosystem service valuation; regulatory analysis; recreation and tourism; sustainable economic development; public infrastructure investment; and population projections. Recent interests have focused on risk based decision making in the face of a changing climate. She also brings expertise in econometric analysis, program review, feasibility analyses, National Environmental Policy Act (NEPA), risk perception, Natural Resource Damage Assessment (NRDA), surveys, and data analysis. She has worked with numerous federal, state, tribal, and municipal agencies as well as private industrial clients and law firms. Gretchen has considerable litigation support experience including serving as expert witness in forecasting water demand and other topics.

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EDUCATION

1995-1998
Ph.D., Food and Resource Economics
University of Florida, Gainesville, FL, United States

1991-1995
M.S., Food and Resource Economics
University of Florida, Gainesville, FL, United States

1977-1982
B.A., Religion Studies
Wellesley College, Wellesley, MA, United States

COURSES/CERTIFICATIONS

American Red Cross Adult CPR and First Aid Training CPR - AED Certification, 2015

LANGUAGE SKILLS

English (mother tongue), Spanish, Setswana

SELECTED PROJECT EXPERIENCE FOLLOWS

Benefits and Costs of Nature Based Adaptation to Climate Change – Non Profit Organization
Worked to evaluate impacts of alternative climate change adaptation strategies. Baseline conditions included an evaluation of how changing climatic conditions would affect the economic value of structures, agriculture, and ecosystem services to the year 2100. Benefits and costs of adaptation strategies were measured by evaluating the same assets under nature-based and engineering-based adaptation alternatives for Ventura County, California. The team worked closely with stakeholders representing city governments, state agencies, emergency managers, and the US Navy.

Global Water Resources Availability – Agricultural
Conducted an environmental scan for Driscoll's Berries, evaluating the risks associated with global access to fuel, water, land, and labor over the next 15 to 20 years. The team reviewed global forecasts for availability of these resources and analyzed how changing access might influence decisions to invest in areas throughout the world. Climate change impacts to agricultural production were analyzed in a GIS environment and overlaid with land, labor, and fuel availability.

Trade Leakage Analysis for Cap and Trade System, California
Analyzed trade leakage for rare earth mine in Central California for the purpose of establishing initial emission credits under the California cap and trade system designed to comply with AB 32.

Economic Value of Environmental and Community Benefits from Stewardship Development Strategy, Venice, Florida
Led a research team to identify and quantify environmental and community benefits associated with an environmentally friendly development design plan. The study identified benefits of the proposed project over and above those that would be realized using conventional development strategy. The proposed project produced additional environmental value through adherence to building and design standards and practices such as Florida Green Building Coalition, Smartgrowth, Low Impact Design (LID), Florida Yards and Neighborhoods, and Leadership in Energy and Environmental Design (LEED). Quantified benefits included improved water and ecological functioning, greater habitat for wildlife, reduced transportation and associated reductions in costs and pollution, improved energy conservation, and healthier lifestyles for citizens.

Regulatory Analysis of Used Oil Processing and Re-refining in California - Industry
ENVIRON analyzed the used oil markets in California and the impact California Senate Bill 546 (SB 546) will have on the current market structure. ENVIRON examined which elements of SB 546 would improve waste diversion, collection and ultimate end use of used oil. In addition, ENVIRON examined the environmental impact of used oil and the role re-refining serves in reducing that impact on air quality and energy consumption.

Economic Feasibility of Camelina Production for Jet Fuel Biomass Feedstock (Altair, LLC) Seattle, Washington
Dr. Greene evaluated the economic and environmental feasibility of camelina production in the western US for purposes of feedstock for jet fuel energy. The proposed project was submitted for the USDA Biomass Crop Assistance Program (BCAP). The analysis included an economic feasibility determination, including an assessment of location, labor, and infrastructure; a financial feasibility determination based on financial projections and assumptions and cash flows; a sensitivity analysis based on feedstock and energy prices; and an analysis stating that feedstock is the highest and best use of the land and product.

Environmental and Social Impact Analysis, Oyu Tolgoi Mine, Mongolia
Dr. Greene evaluated the ecosystem services provided by the Southern Gobi desert to livestock herders and people living in smaller towns (soums). Ecosystem services were evaluated through data collection, and verification through focus groups and on-site interviews with representatives from various demographic groups. Topics covered include pasture quality, water availability, use of plants and wildlife, and other traditional uses of the natural landscape.

Fargo Moorhead Metropolitan Flood Risk Management Area Draft Feasibility Report and Environmental Impact Statement (Battelle and US Army Corps of Engineers), North Dakota
Served as economics panel member of external panel review. Dr. Greene reviewed the flood damage assessment model and environmental mitigation for proposed flood protection alternatives for the Fargo Moorhead Metropolitan Area. Comments were reviewed and addressed by the US Army Corps of Engineers prior to publication.

Savannah Harbor Expansion Project (Battelle and US Army Corps of Engineers), Georgia
Economics member of external panel review. Dr. Greener reviewed the Savannah Harbor Expansion Project Economic Evaluation, General Reevaluation Report and Transportation Cost and Savings Model. Comments were reviewed and addressed by the US Army Corps of Engineers prior to publication. The review team also reviewed a Tier II EIS for the project including environmental mitigation and enhancement plans.

Economic Analysis of the Proposed Stream Protection Rule (National Mining Association), Washington D.C.
Dr. Greene led the ENVIRON team in evaluating the economic impacts of the Office of Surface Mining proposed stream protection rule (SPR) which affects the entire U.S. coal industry. The percent decrease in access to recoverable reserves was determined for both surface and underground mining, and for each of the three regions in the country. For each sector experiencing losses, the ENVIRON team estimated employment impacts, including direct mining jobs placed at risk as well as total jobs at risk. In addition, ENVIRON developed estimates of the overall economic impact including direct, indirect, and induced effects, and the municipal effects from loss of tax revenues.

Regional Economic Impacts of Wind Power Development, (Palouse Economic Development council), Southeastern Washington
For the Palouse Economic Development Council in Southeastern Washington, assisted in the analysis of the economic impact of three existing wind power projects in Columbia County. Sources of project impacts being evaluated include wind turbine operation and maintenance jobs, lease payments to landowners, increased visitation to the region, increased tax revenue, and potential effects on property values and recreation. In addition to data collection from project developers and operators, the estimation of these effects includes extensive interviews with local service and retail businesses, government officials (tax assessors, public works directors, land use planners, etc), and community organizations (chamber of commerce, economic development agencies). Based on this data, estimated the increased revenue to all economic sectors directly due to the project and how these direct economic impacts ripple through the economy and translate into total increased economic activity (direct, indirect, and induced effects) in terms of jobs and income.

Planning Strategies for Revenue Enhancement on the Valles Caldera National Preserve (Valles Caldera Trust), New Mexico
Managed a project to develop a business plan for the Valles Caldera National Preserve in New Mexico. A variety of ventures are being analyzed for the Preserve, including; mid level lodge with restaurant, high end lodge, campground, cabin rentals, visitor center with gift shop and café, green burial cemetery, and expanding recreational program and visitor tours. Developed an interactive financial model to be used for planning purposes. The interactive model allows board members and preserve staff to adjust model assumptions to view their impact on future cost and return projections.

Future Water Requirements for Domestic, Commercial, Municipal, and Industrial Purposes on the Flathead Indian Reservation, Upper Columbia Area Office, Montana
Worked in cooperation with Tribal Consultants to determine the present use and future water requirements for domestic, commercial, municipal, and industrial (DCMI) purposes on the Flathead Indian Reservation in Montana. The work included an economic assessment of future projects and development opportunities. The results will be included in an operational water model of the reservation. Results will also assist in negotiating for a water rights settlement among the tribe, the state of Montana, and the federal government.

Present Water Use and Future Water Needs for Domestic, Commercial, and Municipal Purposes and Present and Future Comprehensive Ground Water Need by the Lummi Nation on the Lummi Peninsula
Served as expert witness on the domestic, commercial, and municipal water needs of the Lummi Nation. The work included conducting a population projection, and estimating the future water requirements of the tribe on a per capita basis. Water demand forecasts were used in this study covering the

comprehensive ground water needs of the Lummi Nation. Contributed a socioeconomic analysis of the reservation.

Feasibility of Marine Terminal on West Hayden Island – Municipality
Completed an evaluation of the economic gains and losses associated with development of a marine terminal on West Hayden Island for Portland Office of Sustainability and Planning. The effort included assessments of the economic role of Portland Harbor; marine industrial trends; marine site suitability; and land demand. The analysis also informed the Economic Social, Environmental, and Energy (ISEE) analysis completed as part of the city land use plan.

Tribal Housing and Income in the Pacific Northwest: Unmet Need for American Indians Living Outside Tribal Home States, Pierce County, Washington
The Alesek Institute conducted a survey of Native Americans in Washington State during 2004-5. Analyzed the results of the survey, including the different types of household structures found among Native Americans. For example, multigenerational households with children, parents, siblings, and grandparents represented one household structure, while several unrelated adults living together another, and households with single parents and young children still another. The analysis compared how household incomes verified by household structure, and also how Indians from Washington State tribes compared with other Indians living in the region.

Social and Economic Assessment Report, Grand Ronde, Oregon
Conducted a social and economic assessment of several communities within which the Confederated Tribes of the Grand Ronde (CTGR) operate. Developed, administered, and analyzed results of a 14 page mail survey of over 1,300 Tribal members living in the immediate Grand Ronde area and throughout the nation, as well as non-Tribal members living in the local community. The survey questions were developed based on interviews with dozens of Tribal staff members. Also held a series of workshops with representatives from the Tribe to set-up and use a shared information network to house the most current community data and reports.

Analytic Techniques for Incorporating Economics into Coastal Climate Change Adaptation
The Nature Conservancy sought Dr. Greene to analyze existing economic tools to assist in adaptation planning for sea level rise. No single economic tool addresses all the economic impacts of sea level rise, and so it is necessary to understand the capabilities and limitations of available tools. Dr. Greene analyzed the economic metrics, technical expertise required, analytical flexibility, scale of analysis, software requirements, and budget considerations for multiple tools addressing flood damages, regional economic impacts, ecosystem services, and social and community impacts.

Floodplain Ecosystem Services Valuation for Carson River Valley – Municipal Water District
Estimated the value of floodplain ecosystem services provided by farmlands that flood in winter. Facing population and development pressures, the water management district was interested in exploring appropriate monetary values to pay farmers for ecosystem services provided by the undeveloped land. Based on actual flood flow data a model was designed to simulate the actual event and then the same event as it might have happened were the floodplain to have been developed. Results demonstrated changes in peak flow speed, volume, and warning time under the two scenarios.

Economic Analysis of Modified Risk Tobacco Products– Tobacco Industry
Created an estimate of the benefits in terms of health care cost savings that would be stimulated by the adoption of reduced harm tobacco products by smokers who would otherwise continue to smoke. The estimation process involves processing data from numerous public health sources to estimate health care cost savings by state for Medicaid recipients.

Water Supply for Future Demand - Municipality
Oversaw the analysis conducted to identify options to meet future demand for water in Polk County, Oregon. The effort included collection of water use data through interviews with water providers,

reservoir operators, and other stakeholder organizations within the relevant watersheds, and development of a comprehensive database of water use in the region. The information included, among others, source capacity, average daily demand, maximum daily demand, and deficit, where applicable.

Social and Economic Assessment Report, Grand Ronde, Oregon
Conducted a social and economic assessment of several communities within which the Confederated Tribes of the Grand Ronde (CTGR) operate. Developed, administered, and analyzed results of a 14 page mail survey of over 1,300 Tribal members living in the immediate Grand Ronde area and throughout the nation, as well as non-Tribal members living in the local community. The survey questions were developed based on interviews with dozens of Tribal staff members. Also held a series of workshops with representatives from the Tribe to set-up and use a shared information network to house the most current community data and reports.

Comprehensive Economic Development Strategy, White River, Arizona
Provided support to the White Mountain Apache Tribe, as the Tribe updates their Comprehensive Economic Development Strategy (CEDS). The CEDS is required by the US Economic Development Agency when pursuing grants for economic development. Supported the effort through data collection, economic development project evaluations, and overseeing the document preparations.

Impacts of Oil and Gas Development on Tropical Colonists and Indigenous Groups
Led a team providing litigation support to a confidential oil and gas company on potential damage to tropical rainforest land in Latin America. The project involved reviewing the history of Amazonian development in Ecuador, including the colonization effort and the interaction between the indigenous populations, the oil and gas exploration, the government of Ecuador, and the colonial farmers. Economic theory was evaluated and socioeconomic improvements were measured and analyzed using World Bank metrics and econometric tools.

MEMBERSHIPS

American Water Research Association (AWRA)

Population Association of America (PAA)

Western International Economic Association (WIEA)

American Agricultural Economic Association (AAEA)

JERI ANNETTE SAWYER

Manager 8

Jeri Sawyer is an economist with more than 25 years of experience in energy, water, health, and agricultural economic analysis, including crop, livestock, and ranching analysis, water rights analysis, regional economic and demographic forecasting, utility-level electric load forecasting, renewable energy analysis, and electric rate impact analysis. She is highly proficient in power product cost analysis, pricing and rate formulation. Jeri has proven experience in technical and economic analysis, supporting the Bureau of Indian Affairs and associated Native American Tribes for FERC hydroelectric project relicensing, including development of Section 4(e) conditions, Section 10(a) recommendations, Section 10(e) annual charges and alternative energy/power analyses. In addition, she has increasing experience with recreation demand analysis, recreational site assessments and inventories, economic impact analysis, and population forecasting, much of which has been in support of Native American Tribes. Jeri is highly skilled in health economic analysis, providing support to various clients using modeling and statistical analysis.

CONTACT INFORMATION

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United States of America

EDUCATION

1991-1993
MS, Economics
Portland State University, Portland, United States

1984-1988
BS, Agricultural Economics
Washington State University, Pullman, United States

PROJECTS

DEMAND FORECASTING

Water Demand / Population Forecasting for Little Colorado River Basin

Lead economist responsible for the estimation of baseline population, and collection and assessment of additional population data to update previously developed population projection models, using 2000 and 2010 Census data, to forecast future domestic, commercial, municipal, and industrial water requirements for the Hopi Indian Reservation and the Navajo Indian Reservation within the Little Colorado River Basin, Arizona and New Mexico. This information is being used in litigation and negotiation to compare model results to the results used in the settlement agreement related to water right claims on behalf of these tribes.

San Juan River Basin Economic / Socio Economic Analysis

Estimated baseline population and collected additional population data to develop a population projection model for the Navajo Indian Reservation within the San Juan River Basin, Arizona and New Mexico to be used to forecast future domestic, commercial, municipal, and industrial water requirements. This information was used to compare model results to the results used in the settlement agreement related to water right claims on behalf of this tribe.

3 Pueblos Population and Economic Analysis
Developed, prepared and documented population projections for three Pueblos in New Mexico to support the determination of future domestic, commercial, municipal, and industrial (DCMI) water requirements for each of the pueblos.

LARGE MODEL DEVELOPMENT

Economics of Tobacco Harm Reduction Strategies
Assisting in developing estimates of health care costs and cost savings related to tobacco harm reduction strategies. This is an ongoing project where she is working on the continued development and enhancement of a model to estimate changes in life tables related to tobacco harm reduction housed within an Access database with output presented in 2-page excel reports.

The Nature Conservancy, Benefits and Costs of Nature Based Adaptation to Climate Change Ventura, California
All economic costs and benefits of adaptation alternatives for Ventura County were developed including changes in the ecosystem service levels. Flood and hazard damages were evaluated for over 31,000 parcels in a GIS system, including damages to public infrastructure and agriculture. The team is working closely with stakeholders representing city governments, state agencies, emergency managers, and the US Navy.

ENERGY ECONOMIC ASSESSMENT

Enloe Dam FERC Hydroelectric Dam Relicensing and Energy Analysis
Provided economic and socioeconomic analysis for the Enloe Dam FERC licensing process for the Okanogan Public Utility District. She developed the power economics and socioeconomic sections of the License Application. Specifically, she collected, compiled and analyzed power cost and revenue data, and developed a socioeconomic impact analysis to Okanogan County with the operation of the project.

Economic and Energy Analysis for Proposed Wind Project
Harney County 230-kV Transmission Line and Wind Farm EIS. Jeri provided economic and energy analysis for a transmission line right-of-way (ROW) that will connect a wind power project in Harney County, Oregon to the existing power grid. The co-clients are green energy development firms, Harney Electric Cooperative & Columbia Energy Partners. The preferred ROW path crosses national wildlife refuge lands under the management of the Fish & Wildlife Service and Bureau of Land Management that are under general management plan direction.

FERC Hydroelectric Dam Relicensing - Pelton
Serving as overall project manager and provides technical analytical support to the Department of the Interior in economics, recreation and land use, and database and document management, to ensure protection of the trust resources of the Warm Springs Indian Reservation. She oversees and coordinates staff and subcontractors performing studies for a wide variety of disciplines, including fisheries, terrestrial, power engineering, water quality and hydrology, cultural resources, and GIS. She also developed a methodology and price calculations for the sale of allotted reservation land used in the production of power to the Licensees.

Bristol Bay Assessment
Provided a detailed review of the socioeconomic components of an EPA draft scientific study document of the Bristol Bay watershed and its natural resources addressing likely effects of the Pebble Mine in Alaska. Specific review components included Existing Conditions and Impact Assessment of Economics of Energy Resources.

Similkameen River Proposed Hydroelectric Project FERC Study
Provided economic and flooding analysis for the proposed Similkameen River hydroelectric project FERC study for the Okanogan Public Utility District. Developed the power economics and flooding impact analyses. Collecting, compiling, and analyzing county tax data, and developing an impact analysis to Okanogan County with the operation of the proposed project.

St. Lawrence River/FDR Power Project FERC Relicensing Study
Overseeing and coordinating the work of subcontractors from a wide variety of disciplines in the FERC relicensing studies for the St. Lawrence/FDR Project in New York, for which 10(a) recommendations were submitted. Overall project management and provided technical analytical support to the BIA in economics, recreation and land use, and database and document management. Coordinated subcontractors performing studies for fisheries, terrestrial, power engineering, water quality and hydrology, and cultural resources. Deliverables were produced for the Department of the Interior/BIA, with the focus on the protection of the trust resources of the St. Regis Mohawk Tribe Reservation.

Annual Charges Related to Wisconsin River Headwaters Hydroelectric Project FERC Application
Developed recommendations for section 10(e) annual charges to be paid to the Lac Vieux Desert Band of the Lake Superior Chippewa Tribe. Conducted a study on the Lac Vieux Desert Indian Reservation in northern Michigan to determine the amount and value of reservation land flooded by the hydroelectric project. Presented recommendations to the Bureau of Indian Affairs, Minneapolis Area Office in 1997.

Friant Power Authority Impacts
Provided technical support in the development of analysis of the impact to the Friant Power Authority from various alternative flow regimes of the San Joaquin river. The Friant Project consists of three generators, one on each of the Madera Canal, Friant-Kern Canal, and the San Joaquin river outlet of the Friant Dam. Analyzed the proposed reductions in flow through the two canals as it applies to the Friant Power Authority as a whole as well as to its member districts. Analysis included impacts to power generation at the three power facilities, financial impacts to the Friant Power Authority and its eight member water, irrigation, and municipal utility districts, and the final consumers within the region.

Licensing Conditions and Annual Charges Related to Cushman Hydroelectric Project FERC Application
Overseeing and coordinating the work of subcontractors from a wide variety of disciplines and providing economic analysis for the Cushman Hydroelectric Project FERC relicensing project, for the Bureau of Indian Affairs, Northwest Regional Office, ongoing since 1995. Coordinated the development of section 4(e) conditions and developed the recommended 10(e) annual charges for the relicensing of the Cushman Hydroelectric Project, which impacts the Skokomish Indian Reservation in western Washington. Coordinated the work of six subconsultant firms, including experts in fisheries, hydrology, power engineering, geology, sediment transport, wetlands, wildlife, and cultural resources, to address project impacts, including loss of fish habitat and fish passage, flooding, changes in groundwater, changes in wetland and wetland habitat, and impacts on cultural resources.

West Enfield Hydroelectric Project Operations Modification Assessment
Responsible for overseeing and coordinating the work of subcontractors from several disciplines. Evaluated the potential impacts of a proposal to raise the dam at the West Enfield Project (FERC Project No. 2600) in Maine, which could cause further flooding of lands of the Penobscot Indian Nation. Based on information provided by GIS analysts, which included the identification and quantification of additional lands and habitat that could potentially be flooded with raising the pool level by one foot or two feet, developed an annual charge for the flooded lands to be paid to the Penobscot Indian Nation and made recommendations to BIA based on this analysis.

OTHER RELATED ECONOMIC ANALYSIS

Review of Regulatory Impact Assessment of Proposed Air Rule

Part of a team conducting a review of a Regulatory Impact Assessment (RIA) prepared by the Bureau of Ocean Energy Management (BOEM) for a proposed rule regarding air quality near offshore oil and natural gas production in the Gulf of Mexico. Developed cost calculations for various elements of the Proposed Rule, and critiqued the RIA prepared by BOEM in regards to its estimation of cost and benefit impacts of the proposed Rule. Key Deliverables included Economic Assessment within Specific Sector, Geography, & State, Evaluation of Market Mechanisms, Cost Benefit Analysis, Survey Design, Review of Regulatory Impact Assessment

Economic Impact Analysis for Colorado Recycling

Providing economic impact analysis for the Recycling Industry in the State of Colorado. This is an ongoing project which includes gathering data, developing an on-line survey to gather additional non-publicly available data, and using IMPLAN software to analyze the direct, indirect, and induced economic impacts within each county and state-wide. She is responsible for compiling data, using IMPAN software and analyzing the results to develop economic impacts for each county and for the state as a whole.

Coexistence White Paper

Assisting in developing research and a resulting white paper regarding the coexistence of various corn types, including the use of, markets for, prices of, regulations of, and stewardship practices for various types of corn such as conventional, organic, and biotechnology (BT) corn.

Human Use Services Information System

Assisting in the development of a web-based information management system that compiles, evaluates, and facilitates access to publicly available data, reports, articles, and geospatial information related to baseline ecological and human use services provided within a large water body.

OTHER ACTIVITIES

Portland, Oregon – April 2014

Metro Compost Use: Economic Analysis of Supply, Demand, and Utilization
BioCycle West Conference

Denver, Colorado – October 2014

Economic Impacts of Recycling in Colorado
Colorado Association for Recycling Annual Meeting

Tacoma, Washington – May 2004

The Importance of Detailed Small Area Population Projections in Local Planning Efforts,
Pacific Northwest Regional Economic Conference

Boston, Massachusetts – April 2004

Estimating AIAN Migration on Indian Reservations in the Western United States,
Population Association of America Annual Meeting

Minneapolis, Minnesota – May 2003

Projecting Indian Populations for the Purpose of Determining Water Requirements: Methodological Issues
Population Association of America Annual Meeting

APPENDIX I
STANTEC TRAFFIC SIGNAL SYNCHRONIZATION ANALYSIS

Stantec

To:	Eric Lu Ramboll Environ	From:	Daryl Zerfass Stantec
File:	2073010090	Date:	September 2016

Reference: Newhall Ranch RMDP/SCP – GHG Reductions from Traffic Signal Coordination

The following analysis provides an estimate of greenhouse gas (GHG) reductions that would be achieved by improving traffic flow within the three planning areas where approval of the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan (RMDP/SCP) Project would facilitate development. The estimated GHG reductions are calculated using the California Air Pollution Control Officers Association's (CAPCOA) resource document titled, "Quantifying Greenhouse Gas Mitigation Measures" (August 2010). The CAPCOA document identifies specific mitigation measures proven to reduce transportation-related GHG emissions, with step-by-step guidelines (in a "Fact Sheet" format) to quantify the GHG reductions based on the specific features of the subject project.

In this instance, CAPCOA Fact Sheet RPT-2, Improve Traffic Flow, identifies a range of effectiveness, between 0 to 45 percent in estimated GHG reductions, when a project implements improvements to smooth traffic flow, reduce idling, eliminate bottlenecks and manage speed. Strategies include the synchronization of traffic signals to reduce delay.

In this case, signal synchronization is proposed on four road segments in the project area: SR-126 from the Los Angeles County Line to the I-5 NB Ramps; Chiquito Canyon Road/Long Canyon Road/Valencia Boulevard (within the RMDP/SCP boundary); Magic Mountain Parkway from Long Canyon Road to I-5 NB Ramps; and Commerce Center Drive from Franklin Parkway to Magic Mountain Parkway.

To calculate the percentage of CO_2 reduction attributable to signal synchronization, the methodology outlined in the CAPCOA RPT-2 fact sheet is followed. First, the total segment vehicle miles of travel (VMT) for each of the subject segments is calculated by multiplying the forecast segment ADT volume by the length of the segment. Then the running emissions estimates for congested conditions and for free-flow conditions are estimated using the emission factors provided in the RPT-2 fact sheet (e.g., 323 grams of CO_2/mile and 259 grams of CO_2/mile for congested and free-flow conditions at 45 mph, respectively), with the resulting net reduction in GHG emissions for the segment determined. The net emissions reduction for the segment, presented in the form of a percentage reduction of emissions, is then adjusted based on the proportion of segment VMT to total project VMT to thereby arrive at the percentage reduction in total project emissions attributable to the traffic signal synchronization for that specific segment. In this case, the process was repeated for each of the four road segments analyzed; separate tables illustrating the analysis for each of the four segments are attached.

As shown on the tables, synchronizing traffic signals within the RMDP/SCP Project Site would result in the estimated GHG reductions identified in Table 1, below. As shown, a total reduction of overall project-generated GHG of 3.28 percent would be achieved.

Table 1
Traffic Signal Synchronization GHG Reductions

Description:	**% CO_2 Reduction**
SR-126 from the Los Angeles County Line to the I-5 NB Ramps	0.83
Chiquito Canyon Rd/Long Canyon Rd/Valencia Blvd (within RMDP/SCP boundary)	0.91
Magic Mountain Parkway from Long Canyon Rd to I-5 NB Ramps	1.00
Commerce Center Dr from Franklin Parkway to Magic Mountain Parkway	0.54
Total	**3.28%**

Blvd = Boulevard; Dr = Drive; I-5 = Interstate 5; NB = Northbound; Rd = Road; SR-126 = State Route 126

STANTEC CONSULTING SERVICES INC.

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RMDP/SCP - CAPCOA RPT-2 Synchronized Traffic Lights Reduction of GHG

Assumptions:		Outputs:	Notes:
Traffic Signal Coordination	SR-126 (from the Los Angeles County Line to the I-5 NB Ramps)		
Estimated mph average running speed (pre+post)	60		
Project VMT changes (pre+post)?	No		
$VMT_{(Segment)}$ =	66,600 ADT X 5.6 miles	372,960 $VMT_{(Segment)}$	ADT from RMDP Traffic Report (ADT Segments/# Segments) Miles estimated on GIS from aerial map
Project $CO_{2(baseline)}$ =	$EF_{(baseline)}$ X $VMT_{(Project)}$ 332 $CO_{2/mi}$ X 372,960 $VMT_{(Project)}$	123.82 $MTCO_2$	EF from RPT-2 Fact Sheet for 60 mph speed
Project $CO_{2(post)}$ =	$EF_{(post)}$ 306 $CO_{2/mi}$ X 372,960 $VMT_{(Project)}$	114.13 $MTCO_2$	EF from RPT-2 Fact Sheet for 60 mph speed
Project $CO_{2(Total)}$ =	$EF_{(average)}$ x Total ADT x Average for internal & external VMT 319 $CO_{2/mi}$ X 336,051 $ADT_{(Project)}$ X 10.5151 $VMT_{(Project\ Average)}$	1,127.22 $MTCO_2$	Assumes 50% Congested and 50% free flow VMT is weighted average for internal & external VMT for RMDP/SCP ADT from RMDP/SCP LEDPA VMT calculations
% CO_2 Reduction =	$1 - \frac{(\text{Project } CO_{2(Total)} - (\text{Project } CO_{2(baseline)} - \text{Project } CO_{2(post)}))}{\text{Project } CO_{2(Total)}} \times 100$ $1 - \frac{1{,}127.22\ MTCO_2 \times (123.82\ MTCO_2 - 114.13\ MTCO_2)}{1{,}127.22\ MTCO_2}$	**0.86% CO_2 Reduction**	
Alternative Method % CO_2 Reduction =	$\left(1 - \frac{\text{Project } CO_{2(post)}}{\text{Project } CO_{2(baseline)}}\right) \times \frac{VMT_{(Segment)}}{VMT_{(Project\ Total)}} \times 100$ $\left(1 - \frac{114.13\ MTCO_2}{123.82\ MTCO_2}\right) \times \frac{372{,}960\ VMT_{(Segment)}}{3{,}533{,}618\ VMT_{(Total)}} \times 100$	**0.83% CO_2 Reduction**	

RMDP/SCP - CAPCOA RPT-2 Synchronized Traffic Lights Reduction of GHG

Assumptions:		Outputs:	Notes:
Traffic Signal Coordination	Chiquito Canyon Road/Long Canyon Road/Valencia Boulevard (within RMDP/SCP boundary)		
Estimated mph average running speed (pre+post)	45		
Project VMT changes (pre+post)?	No		
$VMT_{(Segment)}$ =	35,300 ADT X 4.6 miles	162,380 $VMT_{(Segment)}$	ADT from RMDP Traffic Report (ADT Segments/# Segments) Miles estimated on GIS from aerial map
Project $CO_{2(baseline)}$ =	$EF_{(baseline)}$ X $VMT_{(Project)}$ 323 $CO_{2/mi}$ X 162,380 $VMT_{(Project)}$	52.45 $MTCO_2$	EF from RPT-2 Fact Sheet for 45 mph speed
Project $CO_{2(post)}$ =	$EF_{(post)}$ 259 $CO_{2/mi}$ X 162,380 $VMT_{(Project)}$	42.06 $MTCO_2$	EF from RPT-2 Fact Sheet for 45 mph speed
Project $CO_{2(Total)}$ =	$EF_{(average)}$ x Total ADT x Average for internal & external VMT 291 $CO_{2/mi}$ X 336,051 $ADT_{(Project)}$ X 10.5151 $VMT_{(Project\ Average)}$	1,028.28 $MTCO_2$	Assumes 50% Congested and 50% free flow VMT is weighted average for internal & external VMT for RMDP/SCP ADT from RMDP/SCP LEDPA VMT calculations
% CO_2 Reduction =	$1 - \frac{(\text{Project } CO_{2(Total)} - (\text{Project } CO_{2(baseline)} - \text{Project } CO_{2(post)}))}{\text{Project } CO_{2(Total)}} \times 100$ $1 - \frac{1{,}028.28\ MTCO_2 \times (52.45\ MTCO_2 - 42.06\ MTCO_2)}{1{,}028.28\ MTCO_2}$	**1.01% CO_2 Reduction**	
Alternative Method % CO_2 Reduction =	$\left(1 - \frac{\text{Project } CO_{2(post)}}{\text{Project } CO_{2(baseline)}}\right) \times \frac{VMT_{(Segment)}}{VMT_{(Project\ Total)}} \times 100$ $\left(1 - \frac{42.06\ MTCO_2}{52.45\ MTCO_2}\right) \times \frac{162{,}380\ VMT_{(Segment)}}{3{,}533{,}618\ VMT_{(Total)}} \times 100$	**0.91% CO_2 Reduction**	

RMDP/SCP - CAPCOA RPT-2 Synchronized Traffic Lights Reduction of GHG

Assumptions:		**Outputs:**	**Notes:**
Traffic Signal Coordination	Magic Mountain Parkway (from Long Canyon Road to I-5 NB Ramps)		
Estimated mph average running speed (pre+post)	45		
Project VMT changes (pre+post)?	No		
$VMT_{(Segment)}$ =	47,000 ADT X 3.8 miles	178,600 $VMT_{(Segment)}$	ADT from RMDP Traffic Report (ADT Segments/# Segments) Miles estimated on GIS from aerial map
Project $CO_{2(baseline)}$ =	$EF_{(baseline)}$ X $VMT_{(Project)}$ 323 $CO_{2/mi}$ X 178,600 $VMT_{(Project)}$	57.69 $MTCO_2$	EF from RPT-2 Fact Sheet for 45 mph speed
Project $CO_{2(post)}$ =	$EF_{(post)}$ 259 $CO_{2/mi}$ X 178,600 $VMT_{(Project)}$	46.26 $MTCO_2$	EF from RPT-2 Fact Sheet for 45 mph speed
Project $CO_{2(Total)}$ =	$EF_{(average)}$ x Total ADT x Average for internal & external VMT 291 $CO_{2/mi}$ X 336,051 $ADT_{(Project)}$ X 10.5151 $VMT_{(Project\ Average)}$	1,028.28 $MTCO_2$	Assumes 50% Congested and 50% free flow VMT is weighted average for internal & external VMT for RMDP/SCP ADT from RMDP/SCP LEDPA VMT calculations
% CO_2 Reduction =	$1 - \dfrac{(\text{Project } CO_{2(Total)} - (\text{Project } CO_{2(baseline)} - \text{Project } CO_{2(post)}))}{\text{Project } CO_{2(Total)}} \times 100$ $1 - \dfrac{1{,}028.28 \ MTCO_2 \ X \ (57.69 \ MTCO_2 - 46.26 \ MTCO_2)}{1{,}028.28 \ MTCO_2}$	**1.11% CO_2 Reduction**	
Alternative Method % CO_2 Reduction =	$\left(1 - \dfrac{\text{Project } CO_{2(post)}}{\text{Project } CO_{2(baseline)}}\right) X \dfrac{VMT_{(Segment)}}{VMT_{(Project\ Total)}} X \ 100$ $\left(1 - \dfrac{46.26 \ MTCO_2}{57.69 \ MTCO_2}\right) X \dfrac{178{,}600 \ VMT_{(Segment)}}{3{,}533{,}618 \ VMT_{(Total)}} X \ 100$	**1.00% CO_2 Reduction**	

RMDP/SCP - CAPCOA RPT-2 Synchronized Traffic Lights Reduction of GHG

Assumptions:		Outputs:	Notes:
Traffic Signal Coordination	Commerce Center Drive (from Franklin Parkway to Magic Mountain Parkway)		
Estimated mph average running speed (pre+post)	45		
Project VMT changes (pre+post)?	No		
$VMT_{(Segment)}$ =	41,700 ADT X 2.3 miles	95,910 $VMT_{(Segment)}$	ADT from RMDP Traffic Report (ADT Segments/# Segments) Miles estimated on GIS from aerial map
Project $CO_{2(baseline)}$ =	$EF_{(baseline)}$ X $VMT_{(Project)}$ 323 $CO_{2/mi}$ X 95,910 $VMT_{(Project)}$	30.98 $MTCO_2$	EF from RPT-2 Fact Sheet for 45 mph speed
Project $CO_{2(post)}$ =	$EF_{(post)}$ 259 $CO_{2/mi}$ X 95,910 $VMT_{(Project)}$	24.84 $MTCO_2$	EF from RPT-2 Fact Sheet for 45 mph speed
Project $CO_{2(Total)}$ =	$EF_{(average)}$ x Total ADT x Average for internal & external VMT 291 $CO_{2/mi}$ X 336,051 $ADT_{(Project)}$ X 10.5151 $VMT_{(Project\ Average)}$	1,028.28 $MTCO_2$	Assumes 50% Congested and 50% free flow VMT is weighted average for internal & external VMT for RMDP/SCP ADT from RMDP/SCP LEDPA VMT calculations
% CO_2 Reduction =	$1 - \frac{(\text{Project } CO_{2(Total)} - (\text{Project } CO_{2(baseline)} - \text{Project } CO_{2(post)}))}{\text{Project } CO_{2(Total)}} \times 100$ $1 - \frac{1{,}028.28\ MTCO_2 \times (30.98\ MTCO_2 - 24.84\ MTCO_2)}{1{,}028.28\ MTCO_2}$	**0.60% CO_2 Reduction**	
Alternative Method			
% CO_2 Reduction =	$\left(1- \frac{\text{Project } CO_{2(post)}}{\text{Project } CO_{2(baseline)}}\right) \times \frac{VMT_{(Segment)}}{VMT_{(Project\ Total)}} \times 100$ $\left(1- \frac{24.84\ MTCO_2}{30.98\ MTCO_2}\right) \times \frac{95{,}910\ VMT_{(Segment)}}{3{,}533{,}618\ VMT_{(Total)}} \times 100$	**0.54% CO_2 Reduction**	

Stantec

APPENDIX J
CONSOL ENERGY EFFICIENCY UPGRADES FOR EXISTING BUILDINGS

TECHNICAL MEMORANDUM

ENERGY EFFICIENCY UPGRADES FOR EXISTING BUILDINGS: A GHG EMISSIONS MITIGATION STRATEGY

Objective:

Estimate the costs and greenhouse gas (GHG) emissions reduction benefits of example building retrofit concepts implemented in Los Angeles County for the Newhall Ranch Building Retrofit Program.

Assumptions:

CLIMATE ZONE

Los Angeles County is intersected by six of the California Energy Commission's (CEC) sixteen Climate Zones (CZs)—more than any other California county. Portions of LA County are in CZs 6, 8, 9, 10, 14, and 16. CZ 9 includes a larger portion of LA County (greater number of ZIP codes and inhabitants) than any other CZ.

In contrast to the very mild coastal climates, represented by CZs 6 and 8, CZ 9 includes some heating and cooling demand (although not as much as CZs 10, 14, or 16). This allows for consideration of energy efficiency retrofit measures that reduce heating and/or cooling energy use (building envelope, HVAC) as well as those that are largely independent of outdoor climate (water heating, lighting, plug loads). In general, programs implemented further inland will see greater savings from heating and cooling focused measures, while programs implemented closer to the coast will see lower levels of savings from heating and cooling measures, making water heating, lighting and plug load measures more attractive in a relative sense.

This analysis of existing building retrofit program opportunities and costs uses **energy modeling data representative of Climate Zone 9**.

BASELINE CONDITIONS

The "baseline" home used to estimate savings is assumed to have original **1975 vintage (pre-Title 24) materials and equipment**. It is assumed that the home has not benefited from any significant energy efficiency upgrades.

CONVERSION FACTORS

The conversion factor for natural gas is **11.708 therms/lb of CO_2**. The conversion factor for electricity reflects the estimated fuel mix of the Renewable Portfolio Standard mandated by SB

350[1], which is **0.377kWh/lb of CO_2**. Both values were multiplied by 2,204 to convert the values from lbs to metric tons of CO_2.

Methods:

REVIEW OF EXISTING ENERGY EFFICIENCY PROGRAM DATA

ConSol gathered cost and energy savings data for more than ten utility energy efficiency (EE) programs and two EE programs implemented by California Department of Community Services and Development (CSD). This cost and savings data was gathered from EE program evaluation and implementation reports, and then formatted and tabulated to show the relative cost of existing conventional EE program delivery models with respect to carbon dioxide (CO_2) savings.

PROGRAM DESIGN

ConSol collected cost and annual savings data for over 40 specific energy saving measures and packages of measures that could be installed in existing residential buildings. The kWh and therm savings data was converted to metric tons of CO_2 and tabulated to allow sorting by dollars-per-metric ton of CO_2 reduction. The cost/benefit ratio for each measure (or package of measures) was one of several considerations used to develop preliminary program concepts. Additionally, ConSol considered the ease of startup/implementation within a short timeframe (in the absence of existing program infrastructure), level of complexity and associated risk for different program delivery models, ability to control/reduce marketing costs, and likelihood of consumer uptake (measure attractiveness to the end user).

Although ConSol focused on residential energy saving measures for purposes of this technical memorandum, ConSol expects that similar energy savings could be achieved in non-residential buildings (at the same or lower cost) with appropriate energy saving measures.

ENERGY AND GHG SAVINGS ESTIMATES

The most recent version of the **2016 California Building Energy Code Compliance Residential (CBECC-Res) software** was used to estimate the savings from the installation of one or more efficiency measures. CBECC software is a public domain energy modeling program developed by the California Energy Commission (CEC).

Energy models of existing homes were first created in CBECC to establish baseline annual kWh and therm consumption from a typical existing home in CZ 9. The model was then re-run to include one or more upgraded energy efficiency measures. The reduction in annual kWh and therm usage was recorded and converted to metric tons of CO_2. In certain cases, annual kWh consumption *increased* due to the electrification of measures previously fueled by natural gas, such as water heating and

[1] SB 350 requires utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030.

space heating. However, this increase in annual kWh eliminated the natural gas energy previously employed for each particular end use, resulting in a net reduction in CO_2.

Additional cost data was gathered from the Database for Energy Efficiency Resources (DEER)[2], a widely accepted (albeit conservative) source for validated energy savings data, which is used to evaluate the efficacy of California utility programs.

Results:

EXISTING GOVERNMENT AND UTILITY ENERGY EFFICIENCY PROGRAMS

ConSol collected data on **whole-home retrofit programs**, such as Energy Upgrade California, as well as **single-measure direct install programs**, such as On Demand Efficiency (for multifamily buildings). The cost/benefit ratio for each program varied, but many of the existing whole-home programs were found to suffer from poor cost performance due to a variety of causes, including – but not limited to – high marketing, outreach and administrative costs.

Notably, natural gas savings offer significantly higher CO_2 savings that the equivalent electricity savings due to relatively clean mix of generation that supplies power to California electric utilities. However, at present utility program regulations restrict “fuel switching” or “electrification” of natural gas equipment, which limits the CO_2 reductions that can be achieved through utility programs.

ALTERNATIVE PROGRAM DESIGNS

Single-Measure Concepts

ConSol identified several measure concepts that focus on “transactional entry points”, at which the program administrator could intervene in a common equipment change-out to increase home efficiency. These entry points address categories of equipment with limited lifespans that must eventually be replaced, including central HVAC systems, water heaters, and roofing. Technologies that have recently matured (such as electric heat pump HVAC and water heaters), as well as new entries to the market (such as insulating roof tiles) offer substantial CO_2 savings—not only when compared to the existing equipment in many older homes—but also to the lower-cost entry-level replacement equipment that is most often installed absent a market intervention.

These measure concepts can work “upstream” to offer upgraded equipment at no added cost to the consumer. In this scenario, a homeowner that has already decided to replace their HVAC system, water heater, or roof with an entry-level product would instead receive a highly efficient model at no added cost. Intervening at this pre-existing entry point all but eliminates marketing expense. Alternately, a low-cost marketing effort focused on owners of older homes—when combined with

[2] http://www.deeresources.com/

aggressive incentives covering over 50% of the installed cost—could inspire homeowners to invest in efficient equipment before the end of the equipment's life requires replacement.

Single measure concepts can substantially reduce QA/QC costs. When compared to whole-home retrofits that can require energy modeling, and test-in/test-out verification, it is relatively simple to confirm the installation of a single measure. In many cases installation of the measure may already be verified by a building department or third party (HERS rater) as part of the building permit. Additionally, identifying the energy characteristics of the existing equipment is more straight forward than modeling whole-home characteristics, further reducing program administration and oversight cost, and providing further assurance that the projected savings will materialize.

ConSol evaluated the costs and savings achievable through roofing, HVAC, and water heater replacement programs for single-family homes. The latter two measure concepts can also be successfully implemented at many multifamily buildings.

Comprehensive "Whole-Home" Concepts

Although single measure concepts are generally less costly to administer and can deliver better bang-for-the-buck, deeper energy savings can be accomplished through installation of multiple measures at once. This comprehensive or "whole-home" approach can be costly to implement in the single-family market, but the centralized ownership of multifamily buildings means one or few individuals make investment decisions about many apartment units or many buildings, making marketing direct and far less costly.

Through this delivery model the individual measures identified for single-family home (e.g. HVAC, water heaters) could be packaged and installed in small-to-medium multifamily buildings (without central systems) or packaged with lighting and low-flow fixtures to provide still deeper energy savings, along with the ancillary benefit of reduced water use. At this time, no comprehensive programs have been presented in the program summary table.

ELECTRIFICATION

Electric heat pump technology is mature and represents a significant opportunity for CO_2 savings. Air-source electric heat pump inverters provide heat by extracting energy from outdoor air and pumping it into indoor air or water, or can provide cooling by running in reverse. One limitation that prevents more widespread adoption of the technology is that the heat pumps lose full function below 20 to 25 degrees F. Since temperatures this low are not encountered in CZ 9, these technologies are particularly promising for deployment in Los Angeles County.

Finally, due to the elimination of on-site natural gas use through electrification of water heating and/or space heating, the higher cost of the products is more than offset by substantial CO_2 savings.

Program Details, Costs, and Benefits:

The table that follows identifies various energy efficiency upgrade measure concepts, as well as the related costs associated with achieving 1,000 metric tons of CO_2 annual reductions.

For several of the program designs presented, efficiency and costs savings are attained by intervening in an existing transaction that commonly occurs in the residential housing market—the purchase of new equipment to replace failing or outdated equipment. In some cases, such as HVAC change-out, the new equipment will already be more efficient than the old model due to building codes and technological advances, but not as efficient as a higher cost replacement model.

Under the "incremental" approach to program savings claims, the difference in cost between an entry-level replacement product and a high-performance product is the basis of the "total measure cost per home". Since the program pays for the difference between the entry-level product (which is still more efficient than the original equipment), the program would only claim the energy savings above and beyond that provided by entry-level equipment—not above the existing equipment.

Under the "full" approach to program savings claims, the incentive amount would be at least 50% of equipment cost. In this instance, the consumer motivation to replace the existing unit could be attributed entirely to the program, and the full value of the energy savings (above existing conditions) would be claimed. Since costs are not directly proportional to equipment performance, the ratio of "incremental" cost to "incremental" savings is not equal to the ratio of "full" cost to "full" savings.

In the case of heat pump technologies that convert a conventional natural gas appliance to electricity, there is an increase in kWh usage, shown as a "negative savings" (in parentheses). In these cases, the increase in electricity usage is more than offset by a decrease in therms, resulting in a net reduction of CO_2.

Table 1. Example Building Retrofit Measures
Los Angeles County, California

Measure Concept[1]	Incremental or Full Savings Claimed[2]	Total Measure Cost/Home (Incentive Amount)[3]	Annual kWh Savings Attributed To Market Intervention[4,5]	Annual Therm Savings Attributed To Market Intervention[4,5]	Annual GHG Savings Attributed to Market Intervention (MT)[4]	Number of Residences Required to Meet 1,000 MT Reduction	Total Cost to Achieve 1,000 MT Annual Reduction[6]
HVAC Upstream Incentive (no-cost upgrade) - All Electric Heat Pump	Incremental	$3,900	(1,526)	249	1.063	940	**$3,667,287**
	Full	$7,020	1,077	282	1.680	595	**$4,178,384**
HVAC Upstream Incentive (no-cost upgrade) - Package Unit or Split Furnace Unit	Incremental	$1,950	283	39	0.258	3,883	**$7,571,083**
	Full	$5,850	2,887	72	0.874	1,144	**$6,691,755**
Rooftop PV 50% Buy Down (4kW System)	Incremental	$7,800	3,358	0	0.574	1,741	**$13,577,932**
	Full	$9,360	6,715	0	1.149	870	**$8,146,759**
Water Heater Replacement No-Cost Upgrade	Incremental	$1,733	(1,263)	177	0.725	1,380	**$2,392,045**
	Full	$2,080	(1,263)	205	0.874	1,145	**$2,381,180**
Roof Replacement No-Cost Upgrade	Full	$3,900	1,840	17	0.408	2,453	**$9,566,871**

Notes:

[1] These are example measure concepts. Energy savings were modeled using 2016 CBECC-Res software.

[2] Incremental savings claimed indicates the Project funds the incremental cost of an upgrade and claims the emissions savings for this incremental gain; for example, when a homeowner goes to replace an HVAC system with the minimum Title 24-compliant unit, instead a highly efficient unit is offered with the difference in cost covered by the Project. Full savings claimed indicates a funding structure where the Project funds a large portion (50-80%) of the total measure costs and claims the entire emissions savings from the measure; for example, replacing a 1975 baseline HVAC system with a highly efficient unit. The energy savings are not directly proportional to costs in these two funding mechanisms.

[3] Total measure cost includes 5% estimated for marketing, 10% for administration, and 15% for technical support QA/QC.

[4] Annual savings attributed to market intervention is the amount of kWh, therms, or GHG savings that are claimed due to the program incentive. Depending on whether the funding structure is the 'full savings claimed' or 'incremental savings claimed', this is either the full savings from a 1975 baseline unit to a highly efficient unit, or the incremental savings from a minimum Title 24-compliant unit to a highly efficient unit.

[5] A negative kWh or therm value indicates the replacement unit consumes more electricity or natural gas than the original unit; however, due to efficiencies and emission factor differences between electricity and gas, the overall GHG emissions are reduced due to the measure.

[6] Total cost is estimated.

Abbreviations

GHG - greenhouse gas
HVAC - heating ventilation air conditioning
kWh - kilowatt-hour
MT - metric ton
PV - photovoltaic
QA/QC - quality assurance/quality control

APPENDIX K
OFFSETS ANALYSIS

Overview of Offsets Calculation

The Project's offsets requirement is calculated based on the Project's emission inventory at build out, the Project's absorption schedule, CalEEMod® calculations, and EMFAC2014 mobile source emission factors. The analysis separates the residential and non-residential components of the Project's emission inventories in order to account for the absorption schedule for each land use. The methodology also identifies the anticipated GHG emission reductions, which are attributable to the Project's mitigation measures and applicable regulatory compliance measures, from the residential and non-residential land uses. Because this analysis does not account for anticipated improvements in the utility intensity factor and vehicle fuel efficiency that are likely to be implemented by the state to achieve the state's 2050 goal, the calculated results for the offsets requirement are considered conservative.

Table K-1 and **Table K-2** show the mitigated residential and non-residential emission inventories, respectively, prior to application of GCC-13.

Using the Project's build-out year (2030) emissions inventory as the starting point, **Table K-3a** shows the Project's mitigated residential emissions extrapolated to 2020 and 2050.[1]

The change in energy- and water-related emissions between 2020 and 2030 is based on CalEEMod® calculations that are used to derive a ratio of the emissions change between 2020 and 2030. The difference in unmitigated emissions between the 2020 and 2030 CalEEMod® inputs, are solely related to the utility intensity factor change, which reflects the Renewable Portfolio Standard for each particular year. The Project's 2020 energy- and water-related emissions are calculated by multiplying the Project build-out year emissions by the respective ratios (e.g., for purposes of energy use emissions in 2020: 4,709 MT CO_2e x 1.21 = 5,722 MT CO_2e).

The change in traffic-related emissions are estimated based on the emission factors provided by EMFAC2014 (e.g., for purposes of traffic emissions in 2020: 55,949 MT CO_2e x 1.28 = 71,683 MT CO_2e). EMFAC2014's post-2030 emissions reductions for mobile sources are attributable to improvements in the fleet wide emission factor from existing regulations. Therefore, the decrease in traffic-related emissions is based on a linear interpolation of the difference in the EMFAC2014 emission factors between 2030 and 2050. Due to the limitations of EMFAC2014, the post-2050 emissions are not assumed to decrease further after 2050.

Table K-3b shows the mitigated residential emission inventories by year, after incorporating the calculated changes to energy-, water- and traffic-related emissions. The percentage change by year is shown as derived from the 2020, 2030 and 2050 emissions inventories identified in **Table K-3a**. The emissions shown assume the Project is fully built out and exists in each calendar year as part of this calculation. As illustrated, the Project's emissions between 2020 and 2050 are anticipated to decrease proportionally, by year, due to regulatory changes. After 2030, the traffic-related emissions will continue to decrease; all other emission categories are conservatively assumed to be constant.

Table K-4a shows the Project's mitigated non-residential emissions extrapolated to 2020 and 2050. This table utilizes the same methodological approach described for **Table K-3a**.

Table K-4b shows the mitigated non-residential emission inventories by year, after incorporating the calculated changes to energy-, water- and traffic-related emissions, and utilizes the same methodological approach described for **Table K-3b**.

Table K-5 shows the Project's residential emissions, by year, after first occupancy. The calculation estimates Project emissions based on a 30-year lifetime for the Project's individual development components. The emission estimates presented in **Table K-5** are based on **Table K-3b**, which

[1] These years are chosen based on the target years for the Renewable Portfolio Standard (i.e., 2020 and 2030) and the limitations of EMFAC2014 which provides emission factors up to 2050, combined with the timeframe of the anticipated occupancy of the Project.

accounts for the on-going emissions decrease due to regulations. The analysis uses the Project's absorption schedule to calculate how many residential units will be occupied in the first year and shows those emissions. In each successive year, additional residential units are assumed to be occupied; thus, the emissions inventory for that year increases. This calculation occurs up to the buildout year (2030), at which point the entire Project is occupied.

Table K-6 shows the non-residential emissions, by year, after first occupancy. This table utilizes the same methodological approach described for **Table K-5**.

Table K-7 sums the emissions, as calculated by year, in **Table K-5** and **Table K-6**, and calculates the offsets ratio for residential and commercial development. The ratios incorporate all Project emissions and are based on commercial rather than non-residential square footage to facilitate implementation of GCC-13.

Table K-1. 2030 Mitigated Residential Emissions Inventory
RMDP/SCP
Los Angeles County, California

Category[1]	CO_2e Emissions[1,2,3] 2030 Mitigated Residential[3] MT/yr
Area[4]	293
Energy Use[5]	4,709
Water Use[6]	5,005
Waste Disposed[7]	11,668
Traffic[8]	55,949
Sub-Total	**77,625**
Construction Amortized[9]	0
Vegetation Amortized[9]	0
Sub-Total	**0**
Total	**77,625**

Notes:

[1] CO_2e emissions were primarily estimated using CalEEMod® version 2013.2.2.

[2] CO_2e includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective AR4 global warming potentials. Source: IPCC Fourth Assessment Report: Climate Change 2007, Available online at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016.

[3] Includes reductions in emissions from Project mitigation measures as shown in Report Table ES-2.

[4] Total area emissions are shown in Report Table ES-2. Total area source emissions are split assuming 80% residential and 20% non-residential emissions for purpose of this calculation.

[5] Total mitigated energy emissions are shown in Report Table ES-2. Residential energy emissions are calculated by summing the following:
1) The emissions associated with residential land uses in Table 2-14b, minus the emissions reductions from GCC-1 Residential Zero Net Energy (shown in Table ES-3).
2) The total mitigated emissions associated with the swimming pools in Table 2-14a.
3) 80% of the emissions reduction associated with GCC-11 Building Retrofit Program; the other 20% is assigned to non-residential emissions reductions for purpose of this calculation.

[6] Total mitigated water emissions are shown in Report Table ES-2. Residential water emissions are calculated by summing the following:
1) Residential water emissions are calculated by summing the emissions associated with residential land uses in Table 2-15d, minus the fraction of emissions reduction due to outdoor recycled water proportional to the residential water emissions out of the total water emissions from Table 2-15d.
2) The fraction of additional emissions associated with excess wastewater in Table 2-15e proportional to the residential indoor water use split from Table 2-15d.

[7] Total waste emissions are shown in Report Table ES-2. Residential waste emissions are the sum of waste emissions associated with residential land uses in Table 2-16.

[8] Total traffic emissions are shown in Report Table ES-2. Residential traffic emissions are calculated by summing the emissions associated with residential land uses as shown in Table 2-18a (including the NHTSA emissions reduction associated with residential), minus the emissions reductions due to the following:
1) The fraction of emissions reductions from GCC-6 TDM, GCC-7 Traffic Signal Synchronization, GCC-8 Electric School Bus Program, and GCC-9 electric Transit Bus Subsidy proportional to the residential mobile emissions out of the total mobile emissions in Table 2-18a.
2) The emissions reductions from GCC-4 Residential EV Chargers
3) The fraction of residential emissions reductions from GCC-12 Off-Site EV Chargers proportional to the number of residential off-site chargers to the total off-site chargers based on the ratio of 1 parking space with charging per 30 DU and 1 parking space with charging per 7 TSF commercial building area.

[9] One-time emissions from construction and vegetation removal were amortized over a 30-year period. The project mitigation plan (GCC-10) includes offsetting all the construction and vegetation related emissions. Source: SCAQMD. 2009. Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13. August. Available online at: http://sfprod.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf?sfvrsn=2. Accessed: September 2016.

Abbreviations:
AR4 - Fourth Assessment Report
CalEEMod® - CALifornia Emissions Estimator MODel
CARB - California Air Resources Board
CEQA - California Environmental Air Quality Act
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EV - Electric Vehicle
GHG - greenhouse gases
IPCC - Intergovernmental Panel on Climate Change
MT - metric tonnes
N_2O - nitrous oxide
SCAQMD - South Coast Air Quality Management District
yr - year

Table K-2. 2030 Mitigated Nonresidential Emissions Inventory
RMDP/SCP
Los Angeles County, California

Category[1]	CO_2e Emissions[1,2,3] 2030 Mitigated Non-Residential[3] MT/yr
Area[4]	73
Energy Use[5]	-1,398
Water Use[6]	3,185
Waste Disposed[7]	11,511
Traffic[8]	146,062
Sub-Total	**159,434**
Construction Amortized[9]	0
Vegetation Amortized[9]	0
Sub-Total	**0**
Total	**159,434**

Notes:

[1] CO_2e emissions were primarily estimated using CalEEMod® version 2013.2.2.

[2] CO_2e includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective AR4 global warming potentials. Source: IPCC Fourth Assessment Report: Climate Change 2007, Available online at: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed: September 2016.

[3] Includes reductions in emissions from Project mitigation measures as shown in Report Table ES-2.

[4] Total area emissions are shown in Report Table ES-2. Total area source emissions are split assuming 80% residential and 20% non-residential emissions for purpose of this calculation.

[5] Total mitigated energy emissions are shown in Report Table ES-2. Non-residential energy emissions are calculated by summing the following:
1) The emissions associated with non-residential land uses in Table 2-14b, minus the emissions reductions from GCC-2 Commercial Zero Net Energy (shown in Table ES-3).
2) 20% of the emissions reduction associated with GCC-11 Building Retrofit Program; the other 80% is assigned to residential emissions reductions for purpose of this calculation.

[6] Total mitigated water emissions are shown in Report Table ES-2. Non-residential water emissions are calculated by summing the following:
1) Non-residential water emissions are calculated by summing the emissions associated with non-residential land uses in Table 2-15d, minus the fraction of emissions reduction due to outdoor recycled water proportional to the non-residential water emissions out of the total water emissions from Table 2-15d.
2) The fraction of additional emissions associated with excess wastewater in Table 2-15e proportional to the non-residential indoor water use split from Table 2-15d.

[7] Total waste emissions are shown in Report Table ES-2. Non-residential waste emissions are the sum of waste emissions associated with non-residential land uses in Table 2-16.

[8] Total traffic emissions are shown in Report Table ES-2. Non-residential traffic emissions are calculated by summing the emissions associated with non-residential land uses as shown in Table 2-18a (including the NHTSA emissions reduction associated with non-residential), minus the emissions reductions due to the following:
1) The fraction of emissions reductions from GCC-6 TDM, GCC-7 Traffic Signal Synchronization, GCC-8 Electric School Bus Program, and GCC-9 electric Transit Bus Subsidy proportional to the non-residential mobile emissions out of the total mobile emissions in Table 2-18a.
2) The emissions reductions from GCC-5 Commercial Development Area EV Chargers.
3) The fraction of non-residential emissions reductions from GCC-12 Off-Site EV Chargers proportional to the number of non-residential off-site chargers to the total off-site chargers based on the ratio of 1 parking space with charging per 30 DU and 1 parking space with charging per 7 TSF commercial building area.

[9] One-time emissions from construction and vegetation removal were amortized over a 30-year period. The project mitigation plan (GCC-10) includes offsetting all the construction and vegetation related emissions. Source: SCAQMD. 2009. Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13. August. Available online at: http://sfprod.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-13/ghg-meeting-13-minutes.pdf?sfvrsn=2. Accessed: September 2016.

Abbreviations:

AR4 - Fourth Assessment Report
CalEEMod® - CALifornia Emissions Estimator MODel
CARB - California Air Resources Board
CEQA - California Environmental Air Quality Act
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EV - Electric Vehicle
GHG - greenhouse gases
IPCC - Intergovernmental Panel on Climate Change
MT - metric tonnes
N_2O - nitrous oxide
SCAQMD - South Coast Air Quality Management District
yr - year

Table K-3a. Residential Emissions Ratios
RMDP/SCP
Los Angeles County, California

2030 to 2020[1]		
Area	Non-Changing	
Energy	1.21	Ratio
Water	1.25	Ratio
Waste	Non-Changing	
Mobile	1.28	Ratio

2030 to 2050[2]		
Area	Non-Changing	
Energy	Non-Changing	
Water	Non-Changing	
Waste	Non-Changing	
Mobile	0.94	Ratio

Interpolation Factors for 2030 to 2020, and 2050 Emissions Changes					
Category[3]	2020 Mitigated (MT CO_2e/yr)	2030 Mitigated[4] (MT CO_2e/yr)	2050 Mitigated (MT CO_2e/yr)	% Difference/yr[5] (2020-2030)	% Difference/yr[5] (2030-2050)
Area	293	**293**	293	0.00%	0.00%
Energy Use	5,722	**4,709**	4,709	1.77%	0.00%
Water Use	6,261	**5,005**	5,005	2.01%	0.00%
Waste Disposed	11,668	**11,668**	11,668	0.00%	0.00%
Traffic	71,683	**55,949**	52,398	2.19%	0.32%
Total	**95,628**	**77,625**	**74,075**	**1.88%**	**0.23%**

Notes:

[1] To calculated the changes in the emissions inventory due to the RPS standard, one additional CalEEMod® run was completed to model the affect of the RPS difference between model years 2030 (50% RPS) and 2020 (33% RPS). The difference in emissions between the 2030 CalEEMod® run and the 2020 CalEEMod® runs was used to calculate the ratios shown. To calculate the changes in mobile emissions, ratios of the weighted average CO_2 running emissions from EMFAC2014 are used (e.g., EMFAC emission factors for 2020 = 423.99; 2030 = 330.93).

[2] After 2030, the emissions from area, energy, water, and waste are held constant because there are currently no regulations to substantiate further quantitative decreases; this is a conservative calculation, because California will likely adopt additional regulations to decrease emissions after 2030 (i.e. to meet 2050 GHG targets). Mobile emissions are assumed to decrease linearly by the percentage reduction in weighted average CO_2 running emissions calculated using EMFAC2014 between 2030 and 2050 (e.g., EMFAC emission factors for 2030 = 330.93 and 2050 = 309.92).

[3] CO_2e emissions were estimated using CalEEMod® version 2013.2.2.

[4] Includes reductions in emissions from mitigation measures as compared to the Unmitigated Project (Table ES-2.)

[5] The percent difference per year is used to interpolate between 2030 and the two other emission years, 2020, and 2050.

Abbreviations:

EMFAC - California Air Resources Board Emissions Factor Model
CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
RPS - Renewable Portfolio Standard
yr - year

Table K-3b. Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Interpolation Factors for 2030 to 2020, and 2050 Emissions Changes					
Category[1]	2020 Mitigated (MT CO_2e / yr)	2030 Mitigated[2] (MT CO_2e / yr)	2050 Mitigated (MT CO_2e / yr)	% Difference / yr[3] (2020-2030)	% Difference / yr[3] (2030-2050)
Area	293	**293**	293	0.00%	0.00%
Energy Use	5,722	**4,709**	4,709	1.77%	0.00%
Water Use	6,261	**5,005**	5,005	2.01%	0.00%
Waste Disposed	11,668	**11,668**	11,668	0.00%	0.00%
Traffic	71,683	**55,949**	52,398	2.19%	0.32%
Total	**95,628**	**77,625**	**74,075**	**1.88%**	**0.23%**

Category[1]	2020 (MT / yr)	2021 (MT / yr)	2022 (MT / yr)	2023 (MT / yr)	2024 (MT / yr)	2025 (MT / yr)	2026 (MT / yr)
Area	**293**	293	293	293	293	293	293
Energy Use	**5,722**	5,621	5,519	5,418	5,317	5,216	5,114
Water Use	**6,261**	6,135	6,010	5,884	5,759	5,633	5,508
Waste Disposed	**11,668**	11,668	11,668	11,668	11,668	11,668	11,668
Traffic	**71,683**	70,110	68,536	66,963	65,389	63,816	62,243
Total[4,5]	**95,628**	93,827	92,027	90,227	88,427	86,626	84,826

Notes:

[1] CO_2e emissions were estimated using CalEEMod® version 2013.2.2.

[2] Includes reductions in emissions from mitigation measures as compared to the Unmitigated Project (Table ES-2.)

[3] The percent difference per year is used to interpolate between 2030 and the two other emission years, 2020, and 2050.

[4] After 2030, the emissions from area, energy, water, and waste are held constant because there are currently no regulations to substantiate further quantitative decreases; this is a conservative calculation, because California will likely adopt additional regulations to decrease emissions after 2030 (i.e. to meet 2050 GHG targets). Mobile emissions are assumed to decrease linearly by the percentage reduction in weighted average CO_2 running emissions calculated using EMFAC2014 between 2030 and 2050 (e.g., EMFAC emission factors for 2030 = 330.93 and 2050 = 309.92).

[5] The 2030 total values match exactly with the 2030 mitigated total.

Abbreviations:

EMFAC - California Air Resources Board Emissions Factor Model
CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
RPS - Renewable Portfolio Standard
yr - year

Table K-3b. Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2027	2028	2029	2030	2031	2032	2033
	(MT/yr)	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	293	293	293	**293**	293	293	293
Energy Use	5,013	4,912	4,811	**4,709**	4,709	4,709	4,709
Water Use	5,382	5,256	5,131	**5,005**	5,005	5,005	5,005
Waste Disposed	11,668	11,668	11,668	**11,668**	11,668	11,668	11,668
Traffic	60,669	59,096	57,522	**55,949**	55,771	55,594	55,416
Total	83,026	81,226	79,426	**77,625**	77,448	77,270	77,093

Table K-3b. Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2034	2035	2036	2037	2038	2039	2040
	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)
Area	293	293	293	293	293	293	293
Energy Use	4,709	4,709	4,709	4,709	4,709	4,709	4,709
Water Use	5,005	5,005	5,005	5,005	5,005	5,005	5,005
Waste Disposed	11,668	11,668	11,668	11,668	11,668	11,668	11,668
Traffic	55,239	55,061	54,884	54,706	54,529	54,351	54,173
Total	76,915	76,738	76,560	76,383	76,205	76,027	75,850

Table K-3b. Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2041	2042	2043	2044	2045	2046	2047
	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)
Area	293	293	293	293	293	293	293
Energy Use	4,709	4,709	4,709	4,709	4,709	4,709	4,709
Water Use	5,005	5,005	5,005	5,005	5,005	5,005	5,005
Waste Disposed	11,668	11,668	11,668	11,668	11,668	11,668	11,668
Traffic	53,996	53,818	53,641	53,463	53,286	53,108	52,931
Total	75,672	75,495	75,317	75,140	74,962	74,785	74,607

Table K-3b. Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2048	2049	2050
	(MT/yr)	(MT/yr)	(MT/yr)
Area	293	293	**293**
Energy Use	4,709	4,709	**4,709**
Water Use	5,005	5,005	**5,005**
Waste Disposed	11,668	11,668	**11,668**
Traffic	52,753	52,576	**52,398**
Total	74,430	74,252	**74,075**

Table K-4a. Non-Residential Emissions Ratios
RMDP/SCP
Los Angeles County, California

2030 to 2020[1]		
Area	Non-Changing	
Energy	1.21	Ratio
Water	1.25	Ratio
Waste	Non-Changing	
Mobile	1.28	Ratio

2030 to 2050[2]		
Area	Non-Changing	
Energy	Non-Changing	
Water	Non-Changing	
Waste	Non-Changing	
Mobile	0.94	Ratio

Interpolation Factors for 2030 to 2020, and 2050 Emissions Changes					
Category[3]	**2020 Mitigated ($MT\ CO_2e/yr$)**	**2030 Mitigated[4] ($MT\ CO_2e/yr$)**	**2050 Mitigated ($MT\ CO_2e/yr$)**	**% Difference/yr[5] (2020-2030)**	**% Difference/yr[5] (2030-2050)**
Area	73	**73**	73	0.00%	0.00%
Energy Use	-1,698	**-1,398**	-1,398	1.77%	0.00%
Water Use	3,984	**3,185**	3,185	2.01%	0.00%
Waste Disposed	11,511	**11,511**	11,511	0.00%	0.00%
Traffic	187,138	**146,062**	136,792	2.19%	0.32%
Sub-Total	**201,008**	**159,434**	**150,164**	**2.07%**	**0.29%**

Notes:

[1] To calculated the changes in the emissions inventory due to the RPS standard, one additional CalEEMod® run was completed to model the affect of the RPS difference between model years 2030 (50% RPS) and 2020 (33% RPS). The difference in emissions between the 2030 CalEEMod® run and the 2020 CalEEMod® runs was used to calculate the ratios shown. To calculate the changes in mobile emissions, ratios of the weighted average CO_2 running emissions from EMFAC2014 are used (e.g., EMFAC emission factors for 2020 = 423.99; 2030 = 330.93).

[2] After 2030, the emissions from area, energy, water, and waste are held constant because there are currently no regulations to substantiate further quantitative decreases; this is a conservative calculation, because California will likely adopt additional regulations to decrease emissions after 2030 (i.e. to meet 2050 GHG targets). Mobile emissions are assumed to decrease linearly by the percentage reduction in weighted average CO_2 running emissions calculated using EMFAC2014 between 2030 and 2050 (e.g., EMFAC emission factors for 2030 = 330.93 and 2050 = 309.92).

[3] CO_2e emissions were estimated using CalEEMod® version 2013.2.2.

[4] Includes reductions in emissions from mitigation measures as compared to the Unmitigated Project (Table ES-2.)

[5] The percent difference per year is used to interpolate between 2030 and the two other emission years, 2020, and 2050.

Abbreviations:

EMFAC - California Air Resources Board Emissions Factor Model
CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
RPS - Renewable Portfolio Standard
yr - year

Table K-4b. Non-Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Interpolation Factors for 2030 to 2020, and 2050 Emissions Changes					
Category[1]	2020 Mitigated (MT CO_2e/yr)	2030 Mitigated[2] (MT CO_2e/yr)	2050 Mitigated (MT CO_2e/yr)	% Difference/yr[3] (2020-2030)	% Difference/yr[3] (2030-2050)
Area	73	**73**	73	0.00%	0.00%
Energy Use	-1,698	**-1,398**	-1,398	1.77%	0.00%
Water Use	3,984	**3,185**	3,185	2.01%	0.00%
Waste Disposed	11,511	**11,511**	11,511	0.00%	0.00%
Traffic	187,138	**146,062**	136,792	2.19%	0.32%
Sub-Total	**201,008**	**159,434**	**150,164**	**2.07%**	**0.29%**

Category[1]	2020 (MT/yr)	2021 (MT/yr)	2022 (MT/yr)	2023 (MT/yr)	2024 (MT/yr)	2025 (MT/yr)	2026 (MT/yr)
Area	**73**	73	73	73	73	73	73
Energy Use	**-1,698**	-1,668	-1,638	-1,608	-1,578	-1,548	-1,518
Water Use	**3,984**	3,904	3,824	3,744	3,664	3,585	3,505
Waste Disposed	**11,511**	11,511	11,511	11,511	11,511	11,511	11,511
Traffic	**187,138**	183,030	178,923	174,815	170,708	166,600	162,492
Total[4,5]	**201,008**	196,851	192,693	188,536	184,378	180,221	176,064

Notes:

[1] CO_2e emissions were estimated using CalEEMod® version 2013.2.2.

[2] Includes reductions in emissions from mitigation measures as compared to the Unmitigated Project (Table ES-2.)

[3] The percent difference per year is used to interpolate between 2030 and the two other emission years, 2020, and 2050.

[4] After 2030, the emissions from area, energy, water, and waste are held constant because there are currently no regulations to substantiate further quantitative decreases; this is a conservative calculation, because California will likely adopt additional regulations to decrease emissions after 2030 (i.e. to meet 2050 GHG targets). Mobile emissions are assumed to decrease linearly by the percentage reduction in weighted average CO_2 running emissions calculated using EMFAC2014 between 2030 and 2050 (e.g., EMFAC emission factors for 2030 = 330.93 and 2050 = 309.92).

[5] The 2030 total values match exactly with the 2030 mitigated total.

Abbreviations:

EMFAC - California Air Resources Board Emissions Factor Model
CalEEMod® - CALifornia Emissions Estimator MODel
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
RPS - Renewable Portfolio Standard
yr - year

Table K-4b. Non-Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2027 (MT/yr)	2028 (MT/yr)	2029 (MT/yr)	2030 (MT/yr)	2031 (MT/yr)	2032 (MT/yr)	2033 (MT/yr)
Area	73	73	73	**73**	73	73	73
Energy Use	-1,488	-1,458	-1,428	**-1,398**	-1,398	-1,398	-1,398
Water Use	3,425	3,345	3,265	**3,185**	3,185	3,185	3,185
Waste Disposed	11,511	11,511	11,511	**11,511**	11,511	11,511	11,511
Traffic	158,385	154,277	150,170	**146,062**	145,599	145,135	144,672
Total	171,906	167,749	163,591	**159,434**	158,970	158,507	158,043

Table K-4b. Non-Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2034	2035	2036	2037	2038	2039	2040
	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)
Area	73	73	73	73	73	73	73
Energy Use	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398
Water Use	3,185	3,185	3,185	3,185	3,185	3,185	3,185
Waste Disposed	11,511	11,511	11,511	11,511	11,511	11,511	11,511
Traffic	144,208	143,745	143,281	142,818	142,354	141,891	141,427
Total	157,580	157,116	156,653	156,189	155,726	155,262	154,799

Table K-4b. Non-Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2041	2042	2043	2044	2045	2046	2047
	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)	(MT/yr)
Area	73	73	73	73	73	73	73
Energy Use	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398
Water Use	3,185	3,185	3,185	3,185	3,185	3,185	3,185
Waste Disposed	11,511	11,511	11,511	11,511	11,511	11,511	11,511
Traffic	140,964	140,500	140,037	139,573	139,110	138,646	138,183
Total	154,335	153,872	153,408	152,945	152,481	152,018	151,554

Table K-4b. Non-Residential Emissions by Year
RMDP/SCP
Los Angeles County, California

Category	2048 (MT/yr)	2049 (MT/yr)	2050 (MT/yr)
Area	73	73	**73**
Energy Use	-1,398	-1,398	**-1,398**
Water Use	3,185	3,185	**3,185**
Waste Disposed	11,511	11,511	**11,511**
Traffic	137,719	137,256	**136,792**
Total	151,091	150,627	**150,164**

Table K-5. Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	1	2	3	4	5	6	7	8
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	5	28	70	117	146	172	198	234
Energy Use[1]	90	541	1,308	2,156	2,646	3,050	3,443	3,989
Water Use	98	591	1,424	2,342	2,866	3,294	3,707	4,283
Waste Disposed	183	1,124	2,765	4,643	5,806	6,824	7,854	9,285
Traffic[2]	1,124	6,753	16,239	26,647	32,538	37,322	41,895	48,279
Total[3]	**1,499**	**9,037**	**21,805**	**35,905**	**44,001**	**50,662**	**57,097**	**66,071**
Fraction of Residential Units Included	0.02	0.10	0.24	0.40	0.50	0.58	0.67	0.80

Sum of Total (Residential Project Lifetime)[3] = **2,313,020** **$MTCO_2e$**

Notes:

[1] The Project is built out starting in 2020 and then completed by 2030. The project lifetime is assumed to be 30 years, consistent with the SCAQMD GHG Working Group.

[2] Emissions have been scaled linearly between 2030 and the years 2020, and 2050. Only the Traffic emissions reduce between 2030 and 2050. No emissions reductions were included after the year 2050, as a conservative estimate due to available EMFAC 2014 data.

[3] The 2030 total values match exactly with the 2030 mitigated total. Beginning in 2050 the emissions begin to decline based on the project lifetime assumption of 30 years.

Abbreviations:

EMFAC - California Air Resources Board Emissions Factor Model
GHG - greenhouse gases
MT - metric tonnes
$MTCO_2e$ - metric tonnes of carbon dioxide equivalents
SCAQMD - South Coast Air Quality Management District
TSF - thousand square feet
yr - year

Table K-5. Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	9	10	11	12	13	14	15	16
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	268	286	**293**	293	293	293	293	293
Energy Use	4,478	4,690	**4,709**	4,709	4,709	4,709	4,709	4,709
Water Use	4,792	5,002	**5,005**	5,005	5,005	5,005	5,005	5,005
Waste Disposed	10,637	11,374	**11,668**	11,668	11,668	11,668	11,668	11,668
Traffic	53,871	56,074	**55,949**	55,771	55,594	55,416	55,239	55,061
Total	**74,045**	**77,425**	**77,625**	**77,448**	**77,270**	**77,093**	**76,915**	**76,738**
Fraction of Residential Units Included	0.91	0.97	1.00	1.00	1.00	1.00	1.00	1.00

Table K-5. Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	17	18	19	20	21	22	23	24
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	293	293	293	293	293	293	293	293
Energy Use	4,709	4,709	4,709	4,709	4,709	4,709	4,709	4,709
Water Use	5,005	5,005	5,005	5,005	5,005	5,005	5,005	5,005
Waste Disposed	11,668	11,668	11,668	11,668	11,668	11,668	11,668	11,668
Traffic	54,884	54,706	54,529	54,351	54,173	53,996	53,818	53,641
Total	**76,560**	**76,383**	**76,205**	**76,027**	**75,850**	**75,672**	**75,495**	**75,317**
Fraction of Residential Units Included	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table K-5. Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	25	26	27	28	29	30	31	32
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	293	293	293	293	293	293	289	265
Energy Use	4,709	4,709	4,709	4,709	4,709	4,709	4,636	4,256
Water Use	5,005	5,005	5,005	5,005	5,005	5,005	4,927	4,523
Waste Disposed	11,668	11,668	11,668	11,668	11,668	11,668	11,485	10,544
Traffic	53,463	53,286	53,108	52,931	52,753	52,576	51,577	47,351
Total	**75,140**	**74,962**	**74,785**	**74,607**	**74,430**	**74,252**	**72,913**	**66,940**
Fraction of Residential Units Included	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.90

Table K-5. Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	33	34	35	36	37	38	39	40
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	224	177	147	122	96	60	26	7
Energy Use	3,594	2,835	2,366	1,955	1,540	962	416	119
Water Use	3,819	3,013	2,515	2,078	1,636	1,022	443	126
Waste Disposed	8,904	7,025	5,862	4,844	3,814	2,383	1,032	294
Traffic	39,983	31,547	26,325	21,754	17,129	10,701	4,633	1,320
Total	**56,524**	**44,597**	**37,215**	**30,753**	**24,215**	**15,127**	**6,549**	**1,866**
Fraction of Residential Units Included	0.76	0.60	0.50	0.42	0.33	0.20	0.09	0.03

Table K-6. Non-Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	1	2	3	4	5	6	7	8
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	0	2	8	21	32	41	49	41
Energy Use[1]	0	-40	-173	-459	-682	-859	-1,012	-1,195
Water Use	0	93	404	1,068	1,585	1,989	2,336	2,751
Waste Disposed	0	274	1,217	3,284	4,978	6,386	7,673	9,248
Traffic[2]	0	4,360	18,911	49,866	73,822	92,425	108,318	127,245
Total[3]	**0**	**4,689**	**20,367**	**53,780**	**79,734**	**99,981**	**117,365**	**138,089**
Fraction of Non-Residential Units Included	0.00	0.02	0.11	0.29	0.43	0.55	0.67	0.80

Sum of Total (Non-Residential Project Lifetime)[3] = 4,713,826 $MTCO_2e$

Notes:
[1] Year 1 is 2020 for both the residential and non-residential analyses. The Project is built out starting in 2020 and then completed by 2030. However, the first non-residential occupancy is in 2021, and full non-residential occupancy is completed in 2030. The project lifetime is assumed to be 30 years, consistent with the SCAQMD GHG Working Group.

[2] Emissions have been scaled linearly between 2030 and the years 2020, and 2050. Only the Traffic emissions reduce between 2030 and 2050. No emissions reductions were included after the year 2050, as a conservative estimate due to available EMFAC 2014 data.

[3] The 2030 total values match exactly with the 2030 mitigated total. Beginning in 2051 the emissions begin to decline based on the project lifetime assumption of 30 years.

Abbreviations:
EMFAC - California Air Resources Board Emissions Factor Model
GHG - greenhouse gases
MT - metric tonnes
$MTCO_2e$ - metric tonnes of carbon dioxide equivalents
SCAQMD - South Coast Air Quality Management District
TSF - thousand square feet
yr - year

Table K-6. Non-Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	9	10	11	12	13	14	15	16
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	66	71	**73**	73	73	73	73	73
Energy Use	-1,317	-1,377	**-1,398**	-1,398	-1,398	-1,398	-1,398	-1,398
Water Use	3,022	3,148	**3,185**	3,185	3,185	3,185	3,185	3,185
Waste Disposed	10,401	11,100	**11,511**	11,511	11,511	11,511	11,511	11,511
Traffic	139,405	144,812	**146,062**	145,599	145,135	144,672	144,208	143,745
Total	**151,577**	**157,755**	**159,434**	**158,970**	**158,507**	**158,043**	**157,580**	**157,116**
Fraction of Non-Residential Units Included	0.90	0.96	1.00	1.00	1.00	1.00	1.00	1.00

Table K-6. Non-Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	17	18	19	20	21	22	23	24
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	73	73	73	73	73	73	73	73
Energy Use	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398
Water Use	3,185	3,185	3,185	3,185	3,185	3,185	3,185	3,185
Waste Disposed	11,511	11,511	11,511	11,511	11,511	11,511	11,511	11,511
Traffic	143,281	142,818	142,354	141,891	141,427	140,964	140,500	140,037
Total	**156,653**	**156,189**	**155,726**	**155,262**	**154,799**	**154,335**	**153,872**	**153,408**
Fraction of Non-Residential Units Included	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table K-6. Non-Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	25	26	27	28	29	30	31	32
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	73	73	73	73	73	73	73	72
Energy Use	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398	-1,398	-1,364
Water Use	3,185	3,185	3,185	3,185	3,185	3,185	3,185	3,109
Waste Disposed	11,511	11,511	11,511	11,511	11,511	11,511	11,511	11,237
Traffic	139,573	139,110	138,646	138,183	137,719	137,256	136,792	133,534
Total	**152,945**	**152,481**	**152,018**	**151,554**	**151,091**	**150,627**	**150,164**	**146,587**
Fraction of Non-Residential Units Included	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98

Table K-6. Non-Residential Emissions by Year After First Occupancy
RMDP/SCP
Los Angeles County, California

	33	34	35	36	37	38	39	40	41
Category	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**	**(MT/yr)**
Area	66	52	42	33	24	14	7	3	0
Energy Use	-1,250	-999	-793	-622	-466	-275	-135	-50	0
Water Use	2,848	2,277	1,808	1,418	1,062	626	307	114	0
Waste Disposed	10,294	8,228	6,533	5,125	3,838	2,263	1,110	411	0
Traffic	122,334	97,772	77,637	60,904	45,606	26,895	13,187	4,880	0
Total	**134,292**	**107,329**	**85,226**	**66,858**	**50,064**	**29,524**	**14,476**	**5,357**	**0**
Fraction of Non-Residential Units Included	0.89	0.71	0.57	0.45	0.33	0.20	0.10	0.04	0.00

Table K-7. Summation of Offset Requirements and Ratios
RMDP/SCP
Los Angeles County, California

RMDP Statistics	
Number of Dwelling Units (DU)[1]	21,242
Commercial Development Area (TSF)[1]	9,300
Offsets Requirements	
Offset Commitment for Operational Emissions (MT CO_2e)[2]	7,026,845
Commitment Associated with Residential	2,313,020
Commitment Associated with Commercial	4,713,826
Offset Ratios[3]	
Residential Offsets (MT CO_2e/DU)	108.89
Commercial Offsets (MT CO_2e/TSF)	506.86

Notes:

[1] The square footage total presented for commercial development does not include the Project's 161.6 acres of public facilities. However, the offset ratios calculated for the residential and commercial development are based on the Project-wide emissions total that remains after implementation of GCC-1 through GCC-12 and, therefore, fully capture the emissions associated with the operation of the public facilities.

[2] Total offsets requirement shown here excludes the Project's construction and vegetation emissions, which will be reduced to zero through implementation of GCC-10.

[3] Ratios are calculated by splitting the total offset commitment between residential and commercial land uses, then dividing by the number of dwelling units or commercial development area.

Abbreviations:
CO_2e - carbon dioxide equivalents
DU - dwelling unit
MT - metric tonnes
TSF - thousand square feet

NRSP 2020 Unmitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,023.00	1000sqft	42.10	1,023,000.00	0
Office Park	324.00	1000sqft	13.30	324,000.00	0
Elementary School	4,500.00	Student	65.00	357,600.00	0
High School	2,500.00	Student	55.00	142,400.00	0
Library	36.00	1000sqft	3.30	36,000.00	0
General Light Industry	33.10	1000sqft	4.30	33,100.00	0
Industrial Park	756.00	1000sqft	31.10	756,000.00	0
Golf Course	180.00	Acre	180.00	7,840,800.00	0
Health Club	43.30	1000sqft	20.80	43,300.00	0
Hotel	143.00	Room	4.10	100,000.00	0
Condo/Townhouse	11,201.00	Dwelling Unit	941.40	11,201,000.00	35283
Single Family Housing	8,316.00	Dwelling Unit	1,261.00	14,968,800.00	26195
Regional Shopping Center	3,247.00	1000sqft	133.60	3,247,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	501.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes 33% RPS.

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Construction emissions calculated separately.

Off-road Equipment -

Vehicle Trips - Trip rates and lengths are based on trip generation summary. Trips are assumed to be 100% primary trips.

Vechicle Emission Factors - EMFAC2014. Includes reduction from Pavley/ACC. Excludes LCFS.

Vechicle Emission Factors -

Vechicle Emission Factors -

Woodstoves - Assumed that any decorative fireplaces are captured in the ConSol residential building energy analysis.

Energy Use - Updated to Title 24 - 2016 based on ConSol building analysis.

Water And Wastewater - Water use updated according to water study.

Solid Waste - Solid waste generation updated according to data for Santa Clarita, CA.

Land Use Change - Vegetation based on project information.

Sequestration - Number of trees based on project information.

Waste Mitigation - 75% diverted.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,001.10	308.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	2.49	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	4.25	0.00

tblEnergyUse	LightingElect	7.04	0.00
tblEnergyUse	LightingElect	1,608.84	767.00
tblEnergyUse	NT24E	3,126.97	2,855.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	2.89	0.00
tblEnergyUse	NT24E	4.62	0.00
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tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	4,244.00
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tblEnergyUse	NT24NG	1.08	0.00
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tblEnergyUse	NT24NG	0.49	0.00
tblEnergyUse	NT24NG	5,856.92	1,500.00
tblEnergyUse	T24E	269.81	499.00
tblEnergyUse	T24E	2.13	6.18

tblEnergyUse	T24E	2.75	9.46
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tblEnergyUse	T24E	2.75	9.46
tblEnergyUse	T24E	2.13	6.18
tblEnergyUse	T24E	3.12	7.84
tblEnergyUse	T24E	5.62	11.41
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tblEnergyUse	T24E	596.10	879.00
tblEnergyUse	T24NG	11,455.03	8,700.00
tblEnergyUse	T24NG	9.81	9.39
tblEnergyUse	T24NG	14.36	19.27
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tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	9.81	9.39
tblEnergyUse	T24NG	20.96	21.58
tblEnergyUse	T24NG	10.54	11.20
tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	10.10	8.87
tblEnergyUse	T24NG	1.21	1.32
tblEnergyUse	T24NG	23,944.02	20,500.00
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tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	9,520.85	0.00
tblFireplaces	NumberGas	7,068.60	0.00
tblFireplaces	NumberNoFireplace	1,120.10	11,201.00
tblFireplaces	NumberNoFireplace	831.60	8,316.00

tblFireplaces	NumberWood	560.05	0.00
tblFireplaces	NumberWood	415.80	0.00
tblLandUse	LandUseSquareFeet	376,215.17	357,600.00
tblLandUse	LandUseSquareFeet	331,652.44	142,400.00
tblLandUse	LandUseSquareFeet	207,636.00	100,000.00
tblLandUse	LotAcreage	23.48	42.10
tblLandUse	LotAcreage	7.44	13.30
tblLandUse	LotAcreage	8.64	65.00
tblLandUse	LotAcreage	7.61	55.00
tblLandUse	LotAcreage	0.83	3.30
tblLandUse	LotAcreage	0.76	4.30
tblLandUse	LotAcreage	17.36	31.10
tblLandUse	LotAcreage	0.99	20.80
tblLandUse	LotAcreage	4.77	4.10
tblLandUse	LotAcreage	700.06	941.40
tblLandUse	LotAcreage	2,700.00	1,261.00
tblLandUse	LotAcreage	74.54	133.60
tblLandUse	Population	32,035.00	35,283.00
tblLandUse	Population	23,784.00	26,195.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	501.88
tblProjectCharacteristics	OperationalYear	2014	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	35,000.00
tblSolidWaste	SolidWasteGenerationRate	5,152.46	48,937.73
tblSolidWaste	SolidWasteGenerationRate	821.25	702.00
tblSolidWaste	SolidWasteGenerationRate	41.04	212.87
tblSolidWaste	SolidWasteGenerationRate	951.39	11,490.34
tblSolidWaste	SolidWasteGenerationRate	167.40	197.10

tblSolidWaste	SolidWasteGenerationRate	246.81	85.34
tblSolidWaste	SolidWasteGenerationRate	456.25	140.40
tblSolidWaste	SolidWasteGenerationRate	78.29	469.10
tblSolidWaste	SolidWasteGenerationRate	937.44	6,368.54
tblSolidWaste	SolidWasteGenerationRate	33.15	141.91
tblSolidWaste	SolidWasteGenerationRate	301.32	2,729.38
tblSolidWaste	SolidWasteGenerationRate	3,409.35	36,479.07
tblSolidWaste	SolidWasteGenerationRate	10,739.95	36,333.02
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tblVehicleEF	HHD	1,543.87	1,682.79
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tblVehicleEF	HHD	4.38	4.63
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tblVehicleEF	HHD	0.03	0.04
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tblVehicleEF	LDT2	0.04	0.03
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tblVehicleEF	LHD2	0.29	0.17
tblVehicleEF	MCY	0.00	0.53
tblVehicleEF	MCY	0.00	0.15
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tblVehicleEF	MCY	141.51	188.02
tblVehicleEF	MCY	38.62	45.22
tblVehicleEF	MCY	3.6930e-003	4.9366e-003
tblVehicleEF	MCY	1.15	1.13
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	0.04	0.01
tblVehicleEF	MCY	8.0000e-003	4.0000e-003
tblVehicleEF	MCY	3.1700e-004	2.3178e-003
tblVehicleEF	MCY	1.0010e-003	4.0498e-003
tblVehicleEF	MCY	0.02	5.0400e-003
tblVehicleEF	MCY	2.0000e-003	1.0000e-003
tblVehicleEF	MCY	2.6600e-004	2.1682e-003
tblVehicleEF	MCY	8.2800e-004	3.8208e-003
tblVehicleEF	MCY	0.91	1.06
tblVehicleEF	MCY	0.41	0.65
tblVehicleEF	MCY	0.54	0.66
tblVehicleEF	MCY	2.34	2.62
tblVehicleEF	MCY	1.26	0.64
tblVehicleEF	MCY	2.06	2.07
tblVehicleEF	MCY	1.9500e-003	2.2763e-003
tblVehicleEF	MCY	6.5100e-004	6.7018e-004
tblVehicleEF	MCY	0.91	1.06
tblVehicleEF	MCY	0.41	0.65

tblVehicleEF	MCY	0.54	0.66
tblVehicleEF	MCY	2.58	3.25
tblVehicleEF	MCY	1.26	0.64
tblVehicleEF	MCY	2.22	2.25
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.95	1.76
tblVehicleEF	MDV	4.02	3.08
tblVehicleEF	MDV	510.84	543.30
tblVehicleEF	MDV	103.50	109.23
tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.24	0.19
tblVehicleEF	MDV	0.37	0.28
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	2.4530e-003	2.4868e-003
tblVehicleEF	MDV	3.5970e-003	2.6429e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	2.2680e-003	2.2956e-003
tblVehicleEF	MDV	3.3290e-003	2.4338e-003
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.64	0.09
tblVehicleEF	MDV	0.34	0.24
tblVehicleEF	MDV	6.4440e-003	5.4489e-003

tblVehicleEF	MDV	1.3440e-003	1.1467e-003
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.08	0.07
tblVehicleEF	MDV	0.64	0.09
tblVehicleEF	MDV	0.36	0.27
tblVehicleEF	MH	0.00	0.04
tblVehicleEF	MH	0.00	0.03
tblVehicleEF	MH	1.92	3.51
tblVehicleEF	MH	6.53	7.10
tblVehicleEF	MH	608.18	1,138.72
tblVehicleEF	MH	29.11	63.67
tblVehicleEF	MH	1.6850e-003	8.9347e-004
tblVehicleEF	MH	1.11	1.23
tblVehicleEF	MH	0.72	0.89
tblVehicleEF	MH	0.05	0.13
tblVehicleEF	MH	8.4470e-003	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	7.3500e-004	1.5795e-003
tblVehicleEF	MH	0.02	0.06
tblVehicleEF	MH	2.1120e-003	3.1954e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	6.7300e-004	1.4634e-003
tblVehicleEF	MH	0.92	1.16
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.40	0.49
tblVehicleEF	MH	0.07	0.13

tblVehicleEF	MH	1.72	0.02
tblVehicleEF	MH	0.36	0.43
tblVehicleEF	MH	6.7210e-003	0.01
tblVehicleEF	MH	4.3700e-004	7.6096e-004
tblVehicleEF	MH	0.92	1.16
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.40	0.49
tblVehicleEF	MH	0.09	0.18
tblVehicleEF	MH	1.72	0.02
tblVehicleEF	MH	0.39	0.47
tblVehicleEF	MHD	3.6310e-003	8.6691e-003
tblVehicleEF	MHD	0.73	0.61
tblVehicleEF	MHD	920.56	1,158.19
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.65	1.86
tblVehicleEF	MHD	0.11	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.8010e-003	3.0000e-003
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.10	0.09
tblVehicleEF	MHD	0.41	0.03
tblVehicleEF	MHD	9.8190e-003	0.01
tblVehicleEF	MHD	0.11	0.11
tblVehicleEF	MHD	0.41	0.03
tblVehicleEF	OBUS	2.9450e-003	0.01
tblVehicleEF	OBUS	0.94	0.67

tblVehicleEF	OBUS	1,042.06	1,273.52
tblVehicleEF	OBUS	2.5090e-003	2.4452e-003
tblVehicleEF	OBUS	2.34	2.06
tblVehicleEF	OBUS	0.10	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.01
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	2.6680e-003	3.0000e-003
tblVehicleEF	OBUS	0.04	9.9522e-003
tblVehicleEF	OBUS	0.12	0.07
tblVehicleEF	OBUS	0.33	0.04
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.14	0.09
tblVehicleEF	OBUS	0.33	0.04
tblVehicleEF	SBUS	4.4530e-003	0.88
tblVehicleEF	SBUS	5.7170e-003	0.01
tblVehicleEF	SBUS	0.00	0.07
tblVehicleEF	SBUS	1.05	18.81
tblVehicleEF	SBUS	3.49	0.85
tblVehicleEF	SBUS	31.52	18.28
tblVehicleEF	SBUS	547.00	2,651.86
tblVehicleEF	SBUS	1,045.89	1,094.86
tblVehicleEF	SBUS	115.65	124.31
tblVehicleEF	SBUS	5.3100e-004	6.5396e-004
tblVehicleEF	SBUS	7.58	24.12
tblVehicleEF	SBUS	7.22	4.88
tblVehicleEF	SBUS	2.18	6.35
tblVehicleEF	SBUS	0.01	0.03

tblVehicleEF	SBUS	0.58	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	4.5670e-003	1.7914e-003
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.25	0.32
tblVehicleEF	SBUS	2.7650e-003	2.6823e-003
tblVehicleEF	SBUS	0.04	0.03
tblVehicleEF	SBUS	4.2020e-003	1.6471e-003
tblVehicleEF	SBUS	0.04	8.1324e-003
tblVehicleEF	SBUS	0.23	0.07
tblVehicleEF	SBUS	0.10	2.28
tblVehicleEF	SBUS	0.02	3.9751e-003
tblVehicleEF	SBUS	0.34	0.12
tblVehicleEF	SBUS	2.18	0.02
tblVehicleEF	SBUS	1.88	0.96
tblVehicleEF	SBUS	5.7980e-003	0.03
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.8370e-003	1.5594e-003
tblVehicleEF	SBUS	0.04	8.1324e-003
tblVehicleEF	SBUS	0.23	0.07
tblVehicleEF	SBUS	0.11	3.28
tblVehicleEF	SBUS	0.02	3.9751e-003
tblVehicleEF	SBUS	0.38	0.14
tblVehicleEF	SBUS	2.18	0.02
tblVehicleEF	SBUS	2.01	1.05
tblVehicleEF	UBUS	0.00	3.00
tblVehicleEF	UBUS	0.00	0.05

tblVehicleEF	UBUS	4.23	12.51
tblVehicleEF	UBUS	7.65	8.85
tblVehicleEF	UBUS	2,019.15	2,009.70
tblVehicleEF	UBUS	19.75	87.72
tblVehicleEF	UBUS	3.1480e-003	2.3706e-003
tblVehicleEF	UBUS	12.01	11.62
tblVehicleEF	UBUS	0.86	1.11
tblVehicleEF	UBUS	0.72	0.64
tblVehicleEF	UBUS	8.0000e-003	0.01
tblVehicleEF	UBUS	0.20	0.15
tblVehicleEF	UBUS	5.5500e-004	9.7388e-004
tblVehicleEF	UBUS	0.31	0.27
tblVehicleEF	UBUS	2.0000e-003	3.0000e-003
tblVehicleEF	UBUS	0.18	0.14
tblVehicleEF	UBUS	5.1500e-004	8.9546e-004
tblVehicleEF	UBUS	4.2320e-003	4.1649e-003
tblVehicleEF	UBUS	0.08	0.07
tblVehicleEF	UBUS	2.3510e-003	2.3226e-003
tblVehicleEF	UBUS	0.75	0.98
tblVehicleEF	UBUS	0.69	0.02
tblVehicleEF	UBUS	0.56	0.66
tblVehicleEF	UBUS	0.02	9.9436e-003
tblVehicleEF	UBUS	3.5700e-004	1.0364e-003
tblVehicleEF	UBUS	4.2320e-003	4.1649e-003
tblVehicleEF	UBUS	0.08	0.07
tblVehicleEF	UBUS	2.3510e-003	2.3226e-003
tblVehicleEF	UBUS	0.83	4.09
tblVehicleEF	UBUS	0.69	0.02

tblVehicleEF	UBUS	0.59	0.72
tblVehicleTrips	CC_TL	10.10	14.40
tblVehicleTrips	CC_TL	10.10	11.90
tblVehicleTrips	CC_TL	10.10	12.00
tblVehicleTrips	CC_TL	10.10	11.20
tblVehicleTrips	CC_TL	10.10	12.10
tblVehicleTrips	CC_TL	10.10	14.10
tblVehicleTrips	CC_TL	10.10	11.80
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CC_TL	10.10	11.80
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CC_TL	10.10	11.60
tblVehicleTrips	CNW_TL	7.90	14.40
tblVehicleTrips	CNW_TL	7.90	11.90
tblVehicleTrips	CNW_TL	7.90	12.00
tblVehicleTrips	CNW_TL	7.90	11.20
tblVehicleTrips	CNW_TL	7.90	12.10
tblVehicleTrips	CNW_TL	7.90	14.10
tblVehicleTrips	CNW_TL	7.90	11.80
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CNW_TL	7.90	11.80
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CNW_TL	7.90	11.60
tblVehicleTrips	CW_TL	18.50	14.40
tblVehicleTrips	CW_TL	18.50	11.90
tblVehicleTrips	CW_TL	18.50	12.00
tblVehicleTrips	CW_TL	18.50	11.20
tblVehicleTrips	CW_TL	18.50	12.10

tblVehicleTrips	CW_TL	18.50	14.10
tblVehicleTrips	CW_TL	18.50	11.80
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	CW_TL	18.50	11.80
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	CW_TL	18.50	11.60
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	38.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	44.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	12.90	8.50
tblVehicleTrips	HO_TL	12.90	8.90
tblVehicleTrips	HS_TL	9.60	8.50
tblVehicleTrips	HS_TL	9.60	8.90
tblVehicleTrips	HW_TL	19.80	8.50
tblVehicleTrips	HW_TL	19.80	8.90
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	58.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	44.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	7.16	6.58
tblVehicleTrips	ST_TR	1.32	1.43
tblVehicleTrips	ST_TR	2.37	1.98
tblVehicleTrips	ST_TR	5.82	5.99
tblVehicleTrips	ST_TR	20.87	2.28

tblVehicleTrips	ST_TR	0.61	0.39
tblVehicleTrips	ST_TR	8.19	6.43
tblVehicleTrips	ST_TR	2.49	1.73
tblVehicleTrips	ST_TR	46.55	55.09
tblVehicleTrips	ST_TR	1.64	1.18
tblVehicleTrips	ST_TR	49.97	48.79
tblVehicleTrips	ST_TR	10.08	7.95
tblVehicleTrips	SU_TR	6.07	5.58
tblVehicleTrips	SU_TR	0.68	0.73
tblVehicleTrips	SU_TR	0.98	0.82
tblVehicleTrips	SU_TR	5.88	6.06
tblVehicleTrips	SU_TR	26.73	2.93
tblVehicleTrips	SU_TR	0.25	0.16
tblVehicleTrips	SU_TR	5.95	4.67
tblVehicleTrips	SU_TR	0.73	0.51
tblVehicleTrips	SU_TR	25.49	30.17
tblVehicleTrips	SU_TR	0.76	0.55
tblVehicleTrips	SU_TR	25.24	24.64
tblVehicleTrips	SU_TR	8.77	6.92
tblVehicleTrips	WD_TR	6.59	6.05
tblVehicleTrips	WD_TR	1.29	0.88
tblVehicleTrips	WD_TR	6.97	7.53
tblVehicleTrips	WD_TR	11.01	9.19
tblVehicleTrips	WD_TR	5.04	5.19
tblVehicleTrips	WD_TR	32.93	3.61
tblVehicleTrips	WD_TR	1.71	1.09
tblVehicleTrips	WD_TR	8.17	6.41
tblVehicleTrips	WD_TR	6.96	4.85

tblVehicleTrips	WD_TR	56.24	66.56
tblVehicleTrips	WD_TR	11.42	8.24
tblVehicleTrips	WD_TR	42.94	41.92
tblVehicleTrips	WD_TR	9.57	7.55
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	ElectricityIntensityFactorToSupply	9,727.00	2,917.00
tblWater	IndoorWaterUseRate	729,790,240.99	475,130,783.00
tblWater	IndoorWaterUseRate	10,909,080.00	7,102,385.00
tblWater	IndoorWaterUseRate	7,654,375.00	4,968,336.00
tblWater	IndoorWaterUseRate	181,821,624.20	118,375,463.00
tblWater	IndoorWaterUseRate	2,560,898.14	1,655,728.00
tblWater	IndoorWaterUseRate	11,012,400.00	7,169,638.00
tblWater	IndoorWaterUseRate	3,627,448.11	2,361,656.00
tblWater	IndoorWaterUseRate	174,825,000.00	113,820,057.00
tblWater	IndoorWaterUseRate	1,126,400.70	733,344.00
tblWater	IndoorWaterUseRate	57,585,734.35	37,491,249.00
tblWater	IndoorWaterUseRate	240,513,477.26	156,586,319.00

tblWater	IndoorWaterUseRate	541,820,877.07	352,753,307.00
tblWater	OutdoorWaterUseRate	460,085,151.93	1,145,624,121.00
tblWater	OutdoorWaterUseRate	28,051,920.00	69,849,991.00
tblWater	OutdoorWaterUseRate	111,439,059.99	277,486,131.00
tblWater	OutdoorWaterUseRate	214,466,642.94	534,028,643.00
tblWater	OutdoorWaterUseRate	1,569,582.73	3,881,230.00
tblWater	OutdoorWaterUseRate	28,317,600.00	70,511,592.00
tblWater	OutdoorWaterUseRate	403,049.79	1,003,605.00
tblWater	OutdoorWaterUseRate	1,761,806.23	4,386,955.00
tblWater	OutdoorWaterUseRate	35,294,482.34	87,884,262.00
tblWater	OutdoorWaterUseRate	147,411,486.06	367,057,386.00
tblWater	OutdoorWaterUseRate	341,582,726.85	850,550,929.00
tblWoodstoves	NumberCatalytic	560.05	0.00
tblWoodstoves	NumberCatalytic	415.80	0.00
tblWoodstoves	NumberNoncatalytic	560.05	0.00
tblWoodstoves	NumberNoncatalytic	415.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	329.0919	329.0919	0.3214	0.0000	335.8421
Energy											0.0000	54,080.2574	54,080.2574	2.4487	0.7582	54,366.7284
Mobile											0.0000	460,905.4551	460,905.4551	23.8521	0.0000	461,406.3494
Waste											29,288.9165	0.0000	29,288.9165	1,730.9254	0.0000	65,638.3493
Water											405.4975	5,147.4425	5,552.9400	41.9459	1.0450	6,757.7383
Total											**29,694.4139**	**520,462.2469**	**550,156.6608**	**1,799.4936**	**1.8032**	**588,505.0076**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	329.0919	329.0919	0.3214	0.0000	335.8421
Energy											0.0000	54,080.2574	54,080.2574	2.4487	0.7582	54,366.7284
Mobile											0.0000	460,905.4551	460,905.4551	23.8521	0.0000	461,406.3494
Waste											7,322.2291	0.0000	7,322.2291	432.7313	0.0000	16,409.5873
Water											405.4975	5,147.4425	5,552.9400	41.9383	1.0434	6,757.0913
Total											**7,727.7266**	**520,462.2469**	**528,189.9735**	**501.2919**	**1.8016**	**539,275.5987**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**73.98**	**0.00**	**3.99**	**72.14**	**0.09**	**8.37**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	24,780.0000
Vegetation Land Change	-64,130.3350
Total	**-39,350.3350**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Phase	Trenching	1/1/2016	12/31/2015	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Phase				0.00	19.80	7.90				

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	460,905.4551	460,905.4551	23.8521	0.0000	461,406.3494
Unmitigated											0.0000	460,905.4551	460,905.4551	23.8521	0.0000	461,406.3494

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	67,766.05	73,702.58	62501.58	209,965,209	209,965,209
Elementary School	3,960.00	0.00	0.00	14,826,240	14,826,240
General Light Industry	249.24	47.33	24.16	815,400	815,400
General Office Building	9,401.37	2,025.54	838.86	31,119,660	31,119,660
Golf Course	934.20	1,078.20	1090.80	3,983,616	3,983,616
Health Club	156.31	98.72	126.87	633,704	633,704
High School	2,725.00	975.00	400.00	10,998,000	10,998,000
Hotel	916.63	919.49	667.81	3,786,188	3,786,188
Industrial Park	3,666.60	1,307.88	385.56	12,808,911	12,808,911
Library	2,396.16	1,983.24	1086.12	9,234,778	9,234,778
Office Park	2,669.76	382.32	178.20	8,896,401	8,896,401
Regional Shopping Center	136,114.24	158,421.13	80006.08	554,339,841	554,339,841
Single Family Housing	62,785.80	66,112.20	57546.72	202,515,689	202,515,689
Total	293,741.37	307,053.64	204,852.76	1,063,923,637	1,063,923,637

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	8.50	8.50	8.50	40.20	19.20	40.60	100	0	0
Elementary School	14.40	14.40	14.40	65.00	30.00	5.00	100	0	0
General Light Industry	11.90	11.90	11.90	59.00	28.00	13.00	100	0	0
General Office Building	12.00	12.00	12.00	33.00	48.00	19.00	100	0	0
Golf Course	11.20	11.20	11.20	33.00	48.00	19.00	100	0	0
Health Club	12.10	12.10	12.10	16.90	64.10	19.00	100	0	0
High School	14.10	14.10	14.10	77.80	17.20	5.00	100	0	0
Hotel	11.80	11.80	11.80	19.40	61.60	19.00	100	0	0
Industrial Park	12.30	12.30	12.30	59.00	28.00	13.00	100	0	0
Library	11.80	11.80	11.80	52.00	43.00	5.00	100	0	0
Office Park	12.30	12.30	12.30	33.00	48.00	19.00	100	0	0
Regional Shopping Center	11.60	11.60	11.60	16.30	64.70	19.00	100	0	0
Single Family Housing	8.90	8.90	8.90	40.20	19.20	40.60	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546128	0.045612	0.202798	0.123113	0.016568	0.006111	0.019369	0.029000	0.002445	0.002371	0.004937	0.000654	0.000893

4.4 Fleet Mix

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	tons/yr										MT/yr					
NaturalGas Mitigated											0.0000	17,510.5256	17,510.5256	0.3356	0.3210	17,617.0918
NaturalGas Unmitigated											0.0000	17,510.5256	17,510.5256	0.3356	0.3210	17,617.0918
Electricity Mitigated											0.0000	36,569.7318	36,569.7318	2.1131	0.4372	36,749.6367
Electricity Unmitigated											0.0000	36,569.7318	36,569.7318	2.1131	0.4372	36,749.6367

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.1089e+008											0.0000	5,917.5074	5,917.5074	0.1134	0.1085	5,953.5203
Elementary School	3.35786e+006											0.0000	179.1884	179.1884	3.4300e-003	3.2900e-003	180.2789
General Light Industry	637837											0.0000	34.0374	34.0374	6.5000e-004	6.2000e-004	34.2446
General Office Building	9.64689e+006											0.0000	514.7948	514.7948	9.8700e-003	9.4400e-003	517.9277
Golf Course	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	834391											0.0000	44.5263	44.5263	8.5000e-004	8.2000e-004	44.7973
High School	1.33714e+006											0.0000	71.3547	71.3547	1.3700e-003	1.3100e-003	71.7889
Hotel	2.158e+006											0.0000	115.1591	115.1591	2.2100e-003	2.1100e-003	115.8599
Industrial Park	8.4672e+006											0.0000	451.8420	451.8420	8.6600e-003	8.2800e-003	454.5919
Library	693720											0.0000	37.0195	37.0195	7.1000e-004	6.8000e-004	37.2448
Office Park	2.87388e+006											0.0000	153.3612	153.3612	2.9400e-003	2.8100e-003	154.2945
Regional Shopping Center	4.28604e+006											0.0000	228.7194	228.7194	4.3800e-003	4.1900e-003	230.1114
Single Family Housing	1.82952e+008											0.0000	9,763.0154	9,763.0154	0.1871	0.1790	9,822.4315
Total												**0.0000**	**17,510.5256**	**17,510.5256**	**0.3356**	**0.3210**	**17,617.0918**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.1089e+008											0.0000	5,917.5074	5,917.5074	0.1134	0.1085	5,953.5203
Elementary School	3.35786e+006											0.0000	179.1884	179.1884	3.4300e-003	3.2900e-003	180.2789
General Light Industry	637837											0.0000	34.0374	34.0374	6.5000e-004	6.2000e-004	34.2446
General Office Building	9.64689e+006											0.0000	514.7948	514.7948	9.8700e-003	9.4400e-003	517.9277
Golf Course	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Health Club	834391											0.0000	44.5263	44.5263	8.5000e-004	8.2000e-004	44.7973
High School	1.33714e+006											0.0000	71.3547	71.3547	1.3700e-003	1.3100e-003	71.7889
Hotel	2.158e+006											0.0000	115.1591	115.1591	2.2100e-003	2.1100e-003	115.8599
Industrial Park	8.4672e+006											0.0000	451.8420	451.8420	8.6600e-003	8.2800e-003	454.5919
Library	693720											0.0000	37.0195	37.0195	7.1000e-004	6.8000e-004	37.2448
Office Park	2.87388e+006											0.0000	153.3612	153.3612	2.9400e-003	2.8100e-003	154.2945
Regional Shopping Center	4.28604e+006											0.0000	228.7194	228.7194	4.3800e-003	4.1900e-003	230.1114
Single Family Housing	1.82952e+008											0.0000	9,763.0154	9,763.0154	0.1871	0.1790	9,822.4315
Total												**0.0000**	**17,510.5256**	**17,510.5256**	**0.3356**	**0.3210**	**17,617.0918**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.10181e+007	9,337.7183	0.5396	0.1116	9,383.6552
Elementary School	2.20997e+006	503.0969	0.0291	6.0100e-003	505.5719
General Light Industry	313126	71.2828	4.1200e-003	8.5000e-004	71.6335
General Office Building	1.37184e+007	3,122.9860	0.1805	0.0373	3,138.3496
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	409618	93.2491	5.3900e-003	1.1100e-003	93.7078
High School	880032	200.3384	0.0116	2.4000e-003	201.3239
Hotel	784000	178.4768	0.0103	2.1300e-003	179.3548
Industrial Park	8.62596e+006	1,963.6906	0.1135	0.0235	1,973.3510
Library	340560	77.5281	4.4800e-003	9.3000e-004	77.9095
Office Park	4.75308e+006	1,082.0336	0.0625	0.0129	1,087.3567
Regional Shopping Center	3.86068e+007	8,788.8039	0.5078	0.1051	8,832.0404
Single Family Housing	4.89812e+007	11,150.5273	0.6443	0.1333	11,205.3824
Total		**36,569.7318**	**2.1131**	**0.4372**	**36,749.6367**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.10181e+007	9,337.7183	0.5396	0.1116	9,383.6552
Elementary School	2.20997e+006	503.0969	0.0291	6.0100e-003	505.5719
General Light Industry	313126	71.2828	4.1200e-003	8.5000e-004	71.6335
General Office Building	1.37184e+007	3,122.9860	0.1805	0.0373	3,138.3496
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Health Club	409618	93.2491	5.3900e-003	1.1100e-003	93.7078
High School	880032	200.3384	0.0116	2.4000e-003	201.3239
Hotel	784000	178.4768	0.0103	2.1300e-003	179.3548
Industrial Park	8.62596e+006	1,963.6906	0.1135	0.0235	1,973.3510
Library	340560	77.5281	4.4800e-003	9.3000e-004	77.9095
Office Park	4.75308e+006	1,082.0336	0.0625	0.0129	1,087.3567
Regional Shopping Center	3.86068e+007	8,788.8039	0.5078	0.1051	8,832.0404
Single Family Housing	4.89812e+007	11,150.5273	0.6443	0.1333	11,205.3824
Total		**36,569.7318**	**2.1131**	**0.4372**	**36,749.6367**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	329.0919	329.0919	0.3214	0.0000	335.8421
Unmitigated											0.0000	329.0919	329.0919	0.3214	0.0000	335.8421

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	329.0919	329.0919	0.3214	0.0000	335.8421
Total											**0.0000**	**329.0919**	**329.0919**	**0.3214**	**0.0000**	**335.8421**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	329.0919	329.0919	0.3214	0.0000	335.8421
Total											**0.0000**	**329.0919**	**329.0919**	**0.3214**	**0.0000**	**335.8421**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	5,552.9400	41.9459	1.0450	6,757.7383
Mitigated	5,552.9400	41.9383	1.0434	6,757.0913

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	475.131 / 1145.62	1,943.978 1	15.5858	0.3870	2,391.250 7
Elementary School	7.10238 / 69.85	80.6710	0.2360	6.4000e-003	87.6109
General Light Industry	4.96834 / 0	8.6011	0.1623	3.9100e-003	13.2204
General Office Building	118.375 / 277.486	476.5579	3.8826	0.0963	587.9545
Golf Course	0 / 534.029	522.7555	0.0302	6.2500e-003	525.3272
Health Club	1.65573 / 3.88123	6.6657	0.0543	1.3500e-003	8.2238
High School	7.16964 / 70.5116	81.4351	0.2382	6.4600e-003	88.4406
Hotel	2.36166 / 1.00361	5.0709	0.0772	1.8700e-003	7.2715
Industrial Park	113.82 / 0	197.0432	3.7181	0.0895	302.8681
Library	0.733344 / 4.38696	5.5639	0.0242	6.3000e-004	6.2669
Office Park	37.4912 / 87.8843	150.9332	1.2297	0.0305	186.2142
Regional Shopping Center	156.586 / 367.057	630.3883	5.1359	0.1274	777.7430
Single Family Housing	352.753 / 850.551	1,443.276 1	11.5714	0.2873	1,775.346 6
Total		**5,552.940 0**	**41.9459**	**1.0450**	**6,757.738 3**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	475.131 / 1145.62	1,943.9781	15.5829	0.3864	2,391.0102
Elementary School	7.10238 / 69.85	80.6710	0.2359	6.3900e-003	87.6073
General Light Industry	4.96834 / 0	8.6011	0.1623	3.9000e-003	13.2179
General Office Building	118.375 / 277.486	476.5579	3.8819	0.0962	587.8946
Golf Course	0 / 534.029	522.7555	0.0302	6.2500e-003	525.3272
Health Club	1.65573 / 3.88123	6.6657	0.0543	1.3500e-003	8.2229
High School	7.16964 / 70.5116	81.4351	0.2382	6.4500e-003	88.4370
Hotel	2.36166 / 1.00361	5.0709	0.0772	1.8700e-003	7.2703
Industrial Park	113.82 / 0	197.0432	3.7175	0.0894	302.8104
Library	0.733344 / 4.38696	5.5639	0.0242	6.3000e-004	6.2665
Office Park	37.4912 / 87.8843	150.9332	1.2295	0.0305	186.1952
Regional Shopping Center	156.586 / 367.057	630.3883	5.1350	0.1272	777.6637
Single Family Housing	352.753 / 850.551	1,443.2761	11.5693	0.2869	1,775.1681
Total		**5,552.9400**	**41.9383**	**1.0434**	**6,757.0914**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7,322.229 1	432.7313	0.0000	16,409.58 73
Unmitigated	29,288.91 65	1,730.925 4	0.0000	65,638.34 93

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	48937.7	9,933.9169	587.0777	0.0000	22,262.5480
Elementary School	702	142.4997	8.4215	0.0000	319.3509
General Light Industry	212.87	43.2107	2.5537	0.0000	96.8379
General Office Building	11490.3	2,332.4352	137.8430	0.0000	5,227.1376
Golf Course	197.1	40.0095	2.3645	0.0000	89.6639
Health Club	85.34	17.3233	1.0238	0.0000	38.8225
High School	140.4	28.4999	1.6843	0.0000	63.8702
Hotel	469.1	95.2231	5.6275	0.0000	213.4010
Industrial Park	6368.54	1,292.7561	76.3997	0.0000	2,897.1497
Library	141.91	28.8065	1.7024	0.0000	64.5571
Office Park	2729.38	554.0395	32.7428	0.0000	1,241.6382
Regional Shopping Center	36479.1	7,404.9215	437.6183	0.0000	16,594.9064
Single Family Housing	36333	7,375.2747	435.8663	0.0000	16,528.4659
Total		**29,288.9165**	**1,730.9254**	**0.0000**	**65,638.3493**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	12234.4	2,483.4792	146.7694	0.0000	5,565.6370
Elementary School	175.5	35.6249	2.1054	0.0000	79.8377
General Light Industry	53.2175	10.8027	0.6384	0.0000	24.2095
General Office Building	2872.59	583.1088	34.4607	0.0000	1,306.7844
Golf Course	49.275	10.0024	0.5911	0.0000	22.4160
Health Club	21.335	4.3308	0.2559	0.0000	9.7056
High School	35.1	7.1250	0.4211	0.0000	15.9676
Hotel	117.275	23.8058	1.4069	0.0000	53.3503
Industrial Park	1592.14	323.1890	19.0999	0.0000	724.2874
Library	35.4775	7.2016	0.4256	0.0000	16.1393
Office Park	682.345	138.5099	8.1857	0.0000	310.4095
Regional Shopping Center	9119.77	1,851.2304	109.4046	0.0000	4,148.7266
Single Family Housing	9083.25	1,843.8187	108.9666	0.0000	4,132.1165
Total		**7,322.2291**	**432.7313**	**0.0000**	**16,409.5873**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-39,350.3350	0.0000	0.0000	-39,350.3350

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	2036.3 / 138	- 11,769.46 00	0.0000	0.0000	- 11,769.46 00
Grassland	950.5 / 0	- 4,096.655 0	0.0000	0.0000	- 4,096.655 0
Scrub	1903.4 / 0	- 27,218.62 00	0.0000	0.0000	- 27,218.62 00
Trees	107 / 0	- 11,877.00 00	0.0000	0.0000	- 11,877.00 00
Trees	82.6 / 0	- 9,168.600 0	0.0000	0.0000	- 9,168.600 0
Wetlands	8.8 / 0	0.0000	0.0000	0.0000	0.0000
Total		**- 64,130.33 50**	**0.0000**	**0.0000**	**- 64,130.33 50**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	35000	24,780.0000	0.0000	0.0000	24,780.0000
Total		**24,780.0000**	**0.0000**	**0.0000**	**24,780.0000**

ES 2020 Unmitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	62.50	1000sqft	4.50	62,500.00	0
Elementary School	750.00	Student	10.00	60,000.00	0
Health Club	6.70	1000sqft	3.20	6,700.00	0
Hotel	286.00	Room	14.30	200,000.00	0
Condo/Townhouse	1,297.00	Dwelling Unit	45.10	1,297,000.00	4086
Single Family Housing	428.00	Dwelling Unit	68.80	770,400.00	1348
Regional Shopping Center	187.50	1000sqft	13.40	187,500.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	501.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes 33% RPS.

Land Use - Land use based on project information. Residential population from project specific estimation.

Construction Phase - Construction emissions calculated separately.

Off-road Equipment - Construction emissions calculated separately.

Trips and VMT - Construction emissions calculated separately.

On-road Fugitive Dust - Construction emissions calculated separately.

Demolition - Construction emissions calculated separately.

Grading - Construction emissions calculated separately.

Architectural Coating - Construction emissions calculated separately.

Vehicle Trips - Trip rates and lengths are based on trip generation summary. Trips are assumed to be 100% primary trips.

Vechicle Emission Factors - EMFAC2014. Includes reduction from Pavley/ACC. Excludes LCFS.

Vechicle Emission Factors -

Vechicle Emission Factors -

Woodstoves - Assumed that any decorative fireplaces are captured in the ConSol residential building energy analysis.

Energy Use - Updated to Title 24 - 2016 based on ConSol building analysis.

Water And Wastewater - Water use updated according to water study.

Solid Waste - Solid waste generation updated according to data for Santa Clarita, CA.

Land Use Change - Vegetation based on project information.

Sequestration - Number of trees based on project information.

Water Mitigation -

Waste Mitigation - 75% diverted.

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	1,001.10	308.00
tblEnergyUse	LightingElect	2.98	0.00
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	3.55	0.00
tblEnergyUse	LightingElect	2.49	0.00

tblEnergyUse	LightingElect	7.04	0.00
tblEnergyUse	LightingElect	1,608.84	767.00
tblEnergyUse	NT24E	3,126.97	2,855.00
tblEnergyUse	NT24E	1.59	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24E	2.89	0.00
tblEnergyUse	NT24E	3.23	0.00
tblEnergyUse	NT24E	5,089.81	4,244.00
tblEnergyUse	NT24NG	2,951.00	1,200.00
tblEnergyUse	NT24NG	1.08	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	NT24NG	4.06	0.00
tblEnergyUse	NT24NG	0.49	0.00
tblEnergyUse	NT24NG	5,856.92	1,500.00
tblEnergyUse	T24E	269.81	499.00
tblEnergyUse	T24E	2.13	6.18
tblEnergyUse	T24E	5.62	13.41
tblEnergyUse	T24E	2.75	9.46
tblEnergyUse	T24E	3.12	7.84
tblEnergyUse	T24E	4.90	11.89
tblEnergyUse	T24E	596.10	879.00
tblEnergyUse	T24NG	11,455.03	8,700.00
tblEnergyUse	T24NG	9.81	9.39
tblEnergyUse	T24NG	10.54	9.43
tblEnergyUse	T24NG	14.36	19.27
tblEnergyUse	T24NG	20.96	21.58

tblEnergyUse	T24NG	1.21	1.32
tblEnergyUse	T24NG	23,944.02	20,500.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	1,102.45	0.00
tblFireplaces	NumberGas	363.80	0.00
tblFireplaces	NumberNoFireplace	129.70	1,297.00
tblFireplaces	NumberNoFireplace	42.80	428.00
tblFireplaces	NumberWood	64.85	0.00
tblFireplaces	NumberWood	21.40	0.00
tblLandUse	LandUseSquareFeet	62,702.53	60,000.00
tblLandUse	LandUseSquareFeet	415,272.00	200,000.00
tblLandUse	LotAcreage	1.43	4.50
tblLandUse	LotAcreage	1.44	10.00
tblLandUse	LotAcreage	0.15	3.20
tblLandUse	LotAcreage	9.53	14.30
tblLandUse	LotAcreage	81.06	45.10
tblLandUse	LotAcreage	138.96	68.80
tblLandUse	LotAcreage	4.30	13.40
tblLandUse	Population	3,709.00	4,086.00
tblLandUse	Population	1,224.00	1,348.00
tblProjectCharacteristics	CO2IntensityFactor	630.89	501.88
tblProjectCharacteristics	OperationalYear	2014	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	2,500.00
tblSolidWaste	SolidWasteGenerationRate	596.62	5,666.66
tblSolidWaste	SolidWasteGenerationRate	136.88	140.40
tblSolidWaste	SolidWasteGenerationRate	58.13	702.00

tblSolidWaste	SolidWasteGenerationRate	38.19	13.21
tblSolidWaste	SolidWasteGenerationRate	156.59	938.20
tblSolidWaste	SolidWasteGenerationRate	196.88	2,106.51
tblSolidWaste	SolidWasteGenerationRate	552.68	1,869.95
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tblVehicleEF	HHD	4.38	4.63
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tblVehicleEF	HHD	0.03	0.04
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tblVehicleEF	LDA	0.04	0.04
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tblVehicleEF	LDT1	0.02	0.02
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tblVehicleEF	LDT1	0.22	0.20
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tblVehicleEF	MCY	0.00	0.15
tblVehicleEF	MCY	19.34	19.38

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tblVehicleEF	MCY	141.51	188.02
tblVehicleEF	MCY	38.62	45.22
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tblVehicleEF	MCY	0.41	0.65
tblVehicleEF	MCY	0.54	0.66
tblVehicleEF	MCY	2.34	2.62
tblVehicleEF	MCY	1.26	0.64
tblVehicleEF	MCY	2.06	2.07
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tblVehicleEF	MCY	6.5100e-004	6.7018e-004
tblVehicleEF	MCY	0.91	1.06
tblVehicleEF	MCY	0.41	0.65
tblVehicleEF	MCY	0.54	0.66
tblVehicleEF	MCY	2.58	3.25
tblVehicleEF	MCY	1.26	0.64
tblVehicleEF	MCY	2.22	2.25

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tblVehicleEF	MDV	0.02	0.02
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tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.05	0.05
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tblVehicleEF	MDV	1.3440e-003	1.1467e-003
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tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.09	0.07

tblVehicleEF	MDV	0.08	0.07
tblVehicleEF	MDV	0.64	0.09
tblVehicleEF	MDV	0.36	0.27
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tblVehicleEF	MH	0.00	0.03
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tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.40	0.49
tblVehicleEF	MH	0.07	0.13
tblVehicleEF	MH	1.72	0.02
tblVehicleEF	MH	0.36	0.43
tblVehicleEF	MH	6.7210e-003	0.01
tblVehicleEF	MH	4.3700e-004	7.6096e-004

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tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.40	0.49
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tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.10	0.09
tblVehicleEF	MHD	0.41	0.03
tblVehicleEF	MHD	9.8190e-003	0.01
tblVehicleEF	MHD	0.11	0.11
tblVehicleEF	MHD	0.41	0.03
tblVehicleEF	OBUS	2.9450e-003	0.01
tblVehicleEF	OBUS	0.94	0.67
tblVehicleEF	OBUS	1,042.06	1,273.52
tblVehicleEF	OBUS	2.5090e-003	2.4452e-003
tblVehicleEF	OBUS	2.34	2.06
tblVehicleEF	OBUS	0.10	0.13

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.01
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	2.6680e-003	3.0000e-003
tblVehicleEF	OBUS	0.04	9.9522e-003
tblVehicleEF	OBUS	0.12	0.07
tblVehicleEF	OBUS	0.33	0.04
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.14	0.09
tblVehicleEF	OBUS	0.33	0.04
tblVehicleEF	SBUS	4.4530e-003	0.88
tblVehicleEF	SBUS	5.7170e-003	0.01
tblVehicleEF	SBUS	0.00	0.07
tblVehicleEF	SBUS	1.05	18.81
tblVehicleEF	SBUS	3.49	0.85
tblVehicleEF	SBUS	31.52	18.28
tblVehicleEF	SBUS	547.00	2,651.86
tblVehicleEF	SBUS	1,045.89	1,094.86
tblVehicleEF	SBUS	115.65	124.31
tblVehicleEF	SBUS	5.3100e-004	6.5396e-004
tblVehicleEF	SBUS	7.58	24.12
tblVehicleEF	SBUS	7.22	4.88
tblVehicleEF	SBUS	2.18	6.35
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.58	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	4.5670e-003	1.7914e-003

tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.25	0.32
tblVehicleEF	SBUS	2.7650e-003	2.6823e-003
tblVehicleEF	SBUS	0.04	0.03
tblVehicleEF	SBUS	4.2020e-003	1.6471e-003
tblVehicleEF	SBUS	0.04	8.1324e-003
tblVehicleEF	SBUS	0.23	0.07
tblVehicleEF	SBUS	0.10	2.28
tblVehicleEF	SBUS	0.02	3.9751e-003
tblVehicleEF	SBUS	0.34	0.12
tblVehicleEF	SBUS	2.18	0.02
tblVehicleEF	SBUS	1.88	0.96
tblVehicleEF	SBUS	5.7980e-003	0.03
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.8370e-003	1.5594e-003
tblVehicleEF	SBUS	0.04	8.1324e-003
tblVehicleEF	SBUS	0.23	0.07
tblVehicleEF	SBUS	0.11	3.28
tblVehicleEF	SBUS	0.02	3.9751e-003
tblVehicleEF	SBUS	0.38	0.14
tblVehicleEF	SBUS	2.18	0.02
tblVehicleEF	SBUS	2.01	1.05
tblVehicleEF	UBUS	0.00	3.00
tblVehicleEF	UBUS	0.00	0.05
tblVehicleEF	UBUS	4.23	12.51
tblVehicleEF	UBUS	7.65	8.85
tblVehicleEF	UBUS	2,019.15	2,009.70
tblVehicleEF	UBUS	19.75	87.72

tblVehicleEF	UBUS	3.1480e-003	2.3706e-003
tblVehicleEF	UBUS	12.01	11.62
tblVehicleEF	UBUS	0.86	1.11
tblVehicleEF	UBUS	0.72	0.64
tblVehicleEF	UBUS	8.0000e-003	0.01
tblVehicleEF	UBUS	0.20	0.15
tblVehicleEF	UBUS	5.5500e-004	9.7388e-004
tblVehicleEF	UBUS	0.31	0.27
tblVehicleEF	UBUS	2.0000e-003	3.0000e-003
tblVehicleEF	UBUS	0.18	0.14
tblVehicleEF	UBUS	5.1500e-004	8.9546e-004
tblVehicleEF	UBUS	4.2320e-003	4.1649e-003
tblVehicleEF	UBUS	0.08	0.07
tblVehicleEF	UBUS	2.3510e-003	2.3226e-003
tblVehicleEF	UBUS	0.75	0.98
tblVehicleEF	UBUS	0.69	0.02
tblVehicleEF	UBUS	0.56	0.66
tblVehicleEF	UBUS	0.02	9.9436e-003
tblVehicleEF	UBUS	3.5700e-004	1.0364e-003
tblVehicleEF	UBUS	4.2320e-003	4.1649e-003
tblVehicleEF	UBUS	0.08	0.07
tblVehicleEF	UBUS	2.3510e-003	2.3226e-003
tblVehicleEF	UBUS	0.83	4.09
tblVehicleEF	UBUS	0.69	0.02
tblVehicleEF	UBUS	0.59	0.72
tblVehicleTrips	CC_TL	10.10	14.40
tblVehicleTrips	CC_TL	10.10	12.00
tblVehicleTrips	CC_TL	10.10	12.20

tblVehicleTrips	CC_TL	10.10	11.80
tblVehicleTrips	CC_TL	10.10	11.60
tblVehicleTrips	CNW_TL	7.90	14.40
tblVehicleTrips	CNW_TL	7.90	12.00
tblVehicleTrips	CNW_TL	7.90	12.20
tblVehicleTrips	CNW_TL	7.90	11.80
tblVehicleTrips	CNW_TL	7.90	11.60
tblVehicleTrips	CW_TL	18.50	14.40
tblVehicleTrips	CW_TL	18.50	12.00
tblVehicleTrips	CW_TL	18.50	12.20
tblVehicleTrips	CW_TL	18.50	11.80
tblVehicleTrips	CW_TL	18.50	11.60
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	DV_TP	38.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	HO_TL	12.90	8.50
tblVehicleTrips	HO_TL	12.90	8.90
tblVehicleTrips	HS_TL	9.60	8.50
tblVehicleTrips	HS_TL	9.60	8.90
tblVehicleTrips	HW_TL	19.80	8.50
tblVehicleTrips	HW_TL	19.80	8.90
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00

tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	PR_TP	58.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	ST_TR	7.16	6.58
tblVehicleTrips	ST_TR	2.37	2.00
tblVehicleTrips	ST_TR	20.87	1.52
tblVehicleTrips	ST_TR	8.19	6.43
tblVehicleTrips	ST_TR	49.97	48.92
tblVehicleTrips	ST_TR	10.08	7.96
tblVehicleTrips	SU_TR	6.07	5.58
tblVehicleTrips	SU_TR	0.98	0.83
tblVehicleTrips	SU_TR	26.73	1.94
tblVehicleTrips	SU_TR	5.95	4.67
tblVehicleTrips	SU_TR	25.24	24.71
tblVehicleTrips	SU_TR	8.77	6.92
tblVehicleTrips	WD_TR	6.59	6.05
tblVehicleTrips	WD_TR	1.29	0.88
tblVehicleTrips	WD_TR	11.01	9.27
tblVehicleTrips	WD_TR	32.93	2.39
tblVehicleTrips	WD_TR	8.17	6.41

tblVehicleTrips	WD_TR	42.94	42.04
tblVehicleTrips	WD_TR	9.57	7.55
tblWater	IndoorWaterUseRate	84,504,771.23	162,308,697.00
tblWater	IndoorWaterUseRate	1,818,180.00	3,492,185.00
tblWater	IndoorWaterUseRate	11,108,359.25	21,506,505.00
tblWater	IndoorWaterUseRate	396,259.07	761,096.00
tblWater	IndoorWaterUseRate	7,254,896.22	13,934,515.00
tblWater	IndoorWaterUseRate	13,888,597.78	26,746,954.00
tblWater	IndoorWaterUseRate	27,885,922.97	53,560,556.00
tblWater	OutdoorWaterUseRate	53,274,747.08	244,326,610.00
tblWater	OutdoorWaterUseRate	4,675,320.00	21,441,793.00
tblWater	OutdoorWaterUseRate	6,808,349.22	31,474,031.00
tblWater	OutdoorWaterUseRate	242,868.46	1,113,833.00
tblWater	OutdoorWaterUseRate	806,099.58	3,696,908.00
tblWater	OutdoorWaterUseRate	8,512,366.38	39,143,247.00
tblWater	OutdoorWaterUseRate	17,580,255.78	80,626,172.00
tblWoodstoves	NumberCatalytic	64.85	0.00
tblWoodstoves	NumberCatalytic	21.40	0.00
tblWoodstoves	NumberNoncatalytic	64.85	0.00
tblWoodstoves	NumberNoncatalytic	21.40	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	29.0907	29.0907	0.0284	0.0000	29.6875
Energy											0.0000	4,308.850 0	4,308.850 0	0.1911	0.0611	4,331.796 4
Mobile											0.0000	34,179.93 35	34,179.93 35	1.7698	0.0000	34,217.09 83
Waste											2,321.593 4	0.0000	2,321.593 4	137.2022	0.0000	5,202.840 5
Water											89.5641	1,903.694 7	1,993.258 8	9.3091	0.2400	2,263.140 2
Total											**2,411.157 5**	**40,421.56 88**	**42,832.72 64**	**148.5006**	**0.3011**	**46,044.56 29**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	29.0907	29.0907	0.0284	0.0000	29.6875
Energy											0.0000	4,308.8500	4,308.8500	0.1911	0.0611	4,331.7964
Mobile											0.0000	34,179.9335	34,179.9335	1.7698	0.0000	34,217.0983
Waste											580.3984	0.0000	580.3984	34.3006	0.0000	1,300.7101
Water											89.5641	1,903.6947	1,993.2588	9.3074	0.2396	2,262.9973
Total											**669.9625**	**40,421.5688**	**41,091.5313**	**45.5972**	**0.3007**	**42,142.2897**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**72.21**	**0.00**	**4.07**	**69.29**	**0.12**	**8.47**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	1,770.000 0
Vegetation Land Change	-2,621.488 0
Total	**-851.4880**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Phase	Trenching	1/1/2016	12/31/2015	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
No Phase				0.00	19.80	7.90				

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	34,179.9335	34,179.9335	1.7698	0.0000	34,217.0983
Unmitigated											0.0000	34,179.9335	34,179.9335	1.7698	0.0000	34,217.0983

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	7,846.85	8,534.26	7237.26	24,312,550	24,312,550
Elementary School	660.00	0.00	0.00	2,471,040	2,471,040
General Office Building	579.38	125.00	51.88	1,918,020	1,918,020
Health Club	16.01	10.18	13.00	65,500	65,500
Hotel	1,833.26	1,838.98	1335.62	7,572,376	7,572,376
Regional Shopping Center	7,882.50	9,172.50	4633.13	32,101,173	32,101,173
Single Family Housing	3,231.40	3,406.88	2961.76	10,424,866	10,424,866
Total	22,049.40	23,087.80	16,232.64	78,865,526	78,865,526

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	8.50	8.50	8.50	40.20	19.20	40.60	100	0	0
Elementary School	14.40	14.40	14.40	65.00	30.00	5.00	100	0	0
General Office Building	12.00	12.00	12.00	33.00	48.00	19.00	100	0	0
Health Club	12.20	12.20	12.20	16.90	64.10	19.00	100	0	0
Hotel	11.80	11.80	11.80	19.40	61.60	19.00	100	0	0
Regional Shopping Center	11.60	11.60	11.60	16.30	64.70	19.00	100	0	0
Single Family Housing	8.90	8.90	8.90	40.20	19.20	40.60	100	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546128	0.045612	0.202798	0.123113	0.016568	0.006111	0.019369	0.029000	0.002445	0.002371	0.004937	0.000654	0.000893

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	tons/yr										MT/yr					
NaturalGas Mitigated											0.0000	1,499.612 9	1,499.612 9	0.0287	0.0275	1,508.739 3
NaturalGas Unmitigated											0.0000	1,499.612 9	1,499.612 9	0.0287	0.0275	1,508.739 3
Electricity Mitigated											0.0000	2,809.237 1	2,809.237 1	0.1623	0.0336	2,823.057 1
Electricity Unmitigated											0.0000	2,809.237 1	2,809.237 1	0.1623	0.0336	2,823.057 1

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.28403e +007											0.0000	685.2073	685.2073	0.0131	0.0126	689.3774
Elementary School	563400											0.0000	30.0652	30.0652	5.8000e-004	5.5000e-004	30.2481
General Office Building	589375											0.0000	31.4513	31.4513	6.0000e-004	5.8000e-004	31.6427
Health Club	129109											0.0000	6.8898	6.8898	1.3000e-004	1.3000e-004	6.9317
Hotel	4.316e +006											0.0000	230.3182	230.3182	4.4100e-003	4.2200e-003	231.7199
Regional Shopping Center	247500											0.0000	13.2075	13.2075	2.5000e-004	2.4000e-004	13.2879
Single Family Housing	9.416e +006											0.0000	502.4736	502.4736	9.6300e-003	9.2100e-003	505.5316
Total												**0.0000**	**1,499.6129**	**1,499.6129**	**0.0287**	**0.0275**	**1,508.7393**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.28403e +007											0.0000	685.2073	685.2073	0.0131	0.0126	689.3774
Elementary School	563400											0.0000	30.0652	30.0652	5.8000e-004	5.5000e-004	30.2481
General Office Building	589375											0.0000	31.4513	31.4513	6.0000e-004	5.8000e-004	31.6427
Health Club	129109											0.0000	6.8898	6.8898	1.3000e-004	1.3000e-004	6.9317
Hotel	4.316e +006											0.0000	230.3182	230.3182	4.4100e-003	4.2200e-003	231.7199
Regional Shopping Center	247500											0.0000	13.2075	13.2075	2.5000e-004	2.4000e-004	13.2879
Single Family Housing	9.416e +006											0.0000	502.4736	502.4736	9.6300e-003	9.2100e-003	505.5316
Total												**0.0000**	**1,499.6129**	**1,499.6129**	**0.0287**	**0.0275**	**1,508.7393**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.74961e+006	1,081.2446	0.0625	0.0129	1,086.5638
Elementary School	370800	84.4122	4.8800e-003	1.0100e-003	84.8275
General Office Building	838125	190.7983	0.0110	2.2800e-003	191.7369
Health Club	63382	14.4289	8.3000e-004	1.7000e-004	14.4998
Hotel	1.568e+006	356.9535	0.0206	4.2700e-003	358.7096
Regional Shopping Center	2.22938e+006	507.5149	0.0293	6.0700e-003	510.0116
Single Family Housing	2.52092e+006	573.8848	0.0332	6.8600e-003	576.7080
Total		**2,809.2371**	**0.1623**	**0.0336**	**2,823.0571**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	4.74961e+006	1,081.2446	0.0625	0.0129	1,086.5638
Elementary School	370800	84.4122	4.8800e-003	1.0100e-003	84.8275
General Office Building	838125	190.7983	0.0110	2.2800e-003	191.7369
Health Club	63382	14.4289	8.3000e-004	1.7000e-004	14.4998
Hotel	1.568e+006	356.9535	0.0206	4.2700e-003	358.7096
Regional Shopping Center	2.22938e+006	507.5149	0.0293	6.0700e-003	510.0116
Single Family Housing	2.52092e+006	573.8848	0.0332	6.8600e-003	576.7080
Total		**2,809.2371**	**0.1623**	**0.0336**	**2,823.0571**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	29.0907	29.0907	0.0284	0.0000	29.6875
Unmitigated											0.0000	29.0907	29.0907	0.0284	0.0000	29.6875

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	29.0907	29.0907	0.0284	0.0000	29.6875
Total											**0.0000**	**29.0907**	**29.0907**	**0.0284**	**0.0000**	**29.6875**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	29.0907	29.0907	0.0284	0.0000	29.6875
Total											**0.0000**	**29.0907**	**29.0907**	**0.0284**	**0.0000**	**29.6875**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	1,993.2588	9.3091	0.2400	2,263.1402
Mitigated	1,993.2588	9.3074	0.2396	2,262.9973

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	162.309 / 244.327	1,150.5571	5.3523	0.1380	1,305.7425
Elementary School	3.49219 / 21.4418	65.6897	0.1175	3.4600e-003	69.2300
General Office Building	21.5065 / 31.474	150.1765	0.7091	0.0183	170.7279
Health Club	0.761096 / 1.11383	5.3146	0.0251	6.5000e-004	6.0419
Hotel	13.9345 / 3.69691	55.0759	0.4570	0.0113	68.1838
Regional Shopping Center	26.747 / 39.1432	186.7697	0.8819	0.0227	212.3288
Single Family Housing	53.5606 / 80.6262	379.6755	1.7662	0.0456	430.8854
Total		**1,993.2588**	**9.3091**	**0.2400**	**2,263.1402**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	162.309 / 244.327	1,150.5571	5.3514	0.1378	1,305.6603
Elementary School	3.49219 / 21.4418	65.6897	0.1175	3.4500e-003	69.2282
General Office Building	21.5065 / 31.474	150.1765	0.7090	0.0182	170.7170
Health Club	0.761096 / 1.11383	5.3146	0.0251	6.5000e-004	6.0415
Hotel	13.9345 / 3.69691	55.0759	0.4569	0.0113	68.1768
Regional Shopping Center	26.747 / 39.1432	186.7697	0.8817	0.0227	212.3153
Single Family Housing	53.5606 / 80.6262	379.6755	1.7659	0.0455	430.8583
Total		**1,993.2588**	**9.3074**	**0.2396**	**2,262.9974**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	580.3984	34.3006	0.0000	1,300.7101
Unmitigated	2,321.5934	137.2022	0.0000	5,202.8405

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	5666.66	1,150.2808	67.9797	0.0000	2,577.8533
Elementary School	140.4	28.4999	1.6843	0.0000	63.8702
General Office Building	702	142.4997	8.4215	0.0000	319.3509
Health Club	13.21	2.6815	0.1585	0.0000	6.0094
Hotel	938.2	190.4461	11.2550	0.0000	426.8020
Regional Shopping Center	2106.51	427.6025	25.2706	0.0000	958.2847
Single Family Housing	1869.95	379.5830	22.4327	0.0000	850.6699
Total		**2,321.5934**	**137.2022**	**0.0000**	**5,202.8405**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	1416.67	287.5702	16.9949	0.0000	644.4633
Elementary School	35.1	7.1250	0.4211	0.0000	15.9676
General Office Building	175.5	35.6249	2.1054	0.0000	79.8377
Health Club	3.3025	0.6704	0.0396	0.0000	1.5024
Hotel	234.55	47.6115	2.8138	0.0000	106.7005
Regional Shopping Center	526.628	106.9006	6.3177	0.0000	239.5712
Single Family Housing	467.488	94.8957	5.6082	0.0000	212.6675
Total		**580.3984**	**34.3006**	**0.0000**	**1,300.7101**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-851.4880	0.0000	0.0000	-851.4880

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	44 / 0	-272.8000	0.0000	0.0000	-272.8000
Grassland	5.8 / 0	-24.9980	0.0000	0.0000	-24.9980
Scrub	149.3 / 0	-2,134.9900	0.0000	0.0000	-2,134.9900
Trees	1.7 / 0	-188.7000	0.0000	0.0000	-188.7000
Total		**-2,621.4880**	**0.0000**	**0.0000**	**-2,621.4880**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	2500	1,770.0000	0.0000	0.0000	1,770.0000
Total		**1,770.0000**	**0.0000**	**0.0000**	**1,770.0000**

VCC 2020 Unmitigated

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,100.00	1000sqft	53.00	1,100,000.00	0
Industrial Park	2,300.00	1000sqft	110.90	2,300,000.00	0

1.2 Other Project Characteristics

Urbanization Rural **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 33

Climate Zone 9 **Operational Year** 2020

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 501.88 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes 33% RPS.

Land Use - Land use based on project information.

Construction Phase - Construction emissions calculated separately.

Off-road Equipment -

Vehicle Trips - Trip rates and lengths are based on trip generation summary. Trips are assumed to be 100% primary trips.

Vechicle Emission Factors - EMFAC 2014. Includes reduction from Pavley/ACC. Excludes LCFS.

Vechicle Emission Factors -

Vechicle Emission Factors -

Woodstoves -

Energy Use - Updated to Title 24 - 2016 based on ConSol building analysis.

Water And Wastewater - Water use updated according to water study.

Solid Waste - Solid waste generation updated according to data for Santa Clarita, CA.

Land Use Change - Vegetation based on project information.

Sequestration - Number of trees based on project information.

Waste Mitigation - 75% diverted.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblDemolition	PhaseName	Demolition	Trenching
tblEnergyUse	LightingElect	4.29	0.00
tblEnergyUse	LightingElect	4.25	0.00
tblEnergyUse	NT24E	4.62	0.00
tblEnergyUse	NT24E	4.79	0.00
tblEnergyUse	NT24NG	0.39	0.00
tblEnergyUse	NT24NG	0.19	0.00
tblEnergyUse	T24E	5.62	11.41
tblEnergyUse	T24E	6.86	14.67
tblEnergyUse	T24NG	10.54	11.20
tblEnergyUse	T24NG	10.10	8.87
tblLandUse	LotAcreage	25.25	53.00
tblLandUse	LotAcreage	52.80	110.90
tblOnRoadDust	PhaseName	Demolition	Trenching
tblProjectCharacteristics	CO2IntensityFactor	630.89	501.88
tblProjectCharacteristics	OperationalYear	2014	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	5,000.00
tblSolidWaste	SolidWasteGenerationRate	2,852.00	19,375.00
tblSolidWaste	SolidWasteGenerationRate	1,023.00	9,266.00
tblTripsAndVMT	PhaseName	Demolition	Trenching
tblVehicleEF	HHD	0.01	0.10
tblVehicleEF	HHD	1.77	1.17

tblVehicleEF	HHD	1,543.87	1,682.79
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	4.38	4.63
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.6960e-003	8.8350e-003
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	0.25	0.16
tblVehicleEF	HHD	0.28	4.9900e-004
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.29	0.27
tblVehicleEF	HHD	0.28	4.9900e-004
tblVehicleEF	LDA	0.01	6.5490e-003
tblVehicleEF	LDA	5.5660e-003	7.0990e-003
tblVehicleEF	LDA	0.81	0.76
tblVehicleEF	LDA	1.41	1.41
tblVehicleEF	LDA	257.96	296.47
tblVehicleEF	LDA	53.04	61.22
tblVehicleEF	LDA	0.53	0.55
tblVehicleEF	LDA	0.07	0.06
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	2.0910e-003	2.3040e-003
tblVehicleEF	LDA	3.3710e-003	2.3500e-003
tblVehicleEF	LDA	1.9380e-003	2.1260e-003
tblVehicleEF	LDA	3.1260e-003	2.1610e-003
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.04	0.04

tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.23	0.04
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	3.7090e-003	2.9710e-003
tblVehicleEF	LDA	7.6100e-004	6.3600e-004
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.23	0.04
tblVehicleEF	LDA	0.11	0.10
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.33	2.01
tblVehicleEF	LDT1	3.94	3.40
tblVehicleEF	LDT1	318.76	360.67
tblVehicleEF	LDT1	64.29	73.05
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.23	0.19
tblVehicleEF	LDT1	0.22	0.20
tblVehicleEF	LDT1	4.3060e-003	3.9440e-003
tblVehicleEF	LDT1	4.8250e-003	3.7750e-003
tblVehicleEF	LDT1	3.9920e-003	3.6320e-003
tblVehicleEF	LDT1	4.4750e-003	3.4720e-003
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.30	0.30
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	1.01	0.19
tblVehicleEF	LDT1	0.29	0.24

tblVehicleEF	LDT1	4.3030e-003	3.6330e-003
tblVehicleEF	LDT1	9.1500e-004	7.9000e-004
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.30	0.30
tblVehicleEF	LDT1	0.13	0.12
tblVehicleEF	LDT1	0.08	0.07
tblVehicleEF	LDT1	1.01	0.19
tblVehicleEF	LDT1	0.31	0.26
tblVehicleEF	LDT2	0.01	8.6180e-003
tblVehicleEF	LDT2	8.3100e-003	8.2570e-003
tblVehicleEF	LDT2	1.15	0.97
tblVehicleEF	LDT2	2.08	1.66
tblVehicleEF	LDT2	384.11	408.12
tblVehicleEF	LDT2	77.68	83.18
tblVehicleEF	LDT2	0.18	0.20
tblVehicleEF	LDT2	0.13	0.10
tblVehicleEF	LDT2	0.18	0.14
tblVehicleEF	LDT2	2.1070e-003	2.1790e-003
tblVehicleEF	LDT2	3.3610e-003	2.3510e-003
tblVehicleEF	LDT2	1.9540e-003	2.0040e-003
tblVehicleEF	LDT2	3.1180e-003	2.1620e-003
tblVehicleEF	LDT2	0.06	0.05
tblVehicleEF	LDT2	0.14	0.12
tblVehicleEF	LDT2	0.06	0.05
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.44	0.07
tblVehicleEF	LDT2	0.15	0.11
tblVehicleEF	LDT2	5.0500e-003	4.0900e-003
tblVehicleEF	LDT2	1.0400e-003	8.6000e-004
tblVehicleEF	LDT2	0.06	0.05

tblVehicleEF	LDT2	0.14	0.12
tblVehicleEF	LDT2	0.06	0.05
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.44	0.07
tblVehicleEF	LDT2	0.16	0.12
tblVehicleEF	LHD1	1.3400e-003	6.3890e-003
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tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.19	0.16
tblVehicleEF	LHD1	1.20	1.06
tblVehicleEF	LHD1	4.70	3.30
tblVehicleEF	LHD1	7.51	8.88
tblVehicleEF	LHD1	547.43	623.08
tblVehicleEF	LHD1	44.67	36.05
tblVehicleEF	LHD1	0.04	0.02
tblVehicleEF	LHD1	0.03	0.07
tblVehicleEF	LHD1	0.87	1.10
tblVehicleEF	LHD1	1.49	1.13
tblVehicleEF	LHD1	3.5100e-004	7.9000e-004
tblVehicleEF	LHD1	0.04	0.08
tblVehicleEF	LHD1	8.7150e-003	9.8790e-003
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tblVehicleEF	LHD1	2.1790e-003	2.4700e-003
tblVehicleEF	LHD1	5.5880e-003	8.9670e-003
tblVehicleEF	LHD1	9.8800e-004	1.1030e-003
tblVehicleEF	LHD1	2.7770e-003	3.4620e-003
tblVehicleEF	LHD1	0.08	0.11

tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	1.8090e-003	2.0600e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.40	0.33
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tblVehicleEF	LHD1	5.8300e-004	4.2200e-004
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tblVehicleEF	LHD1	0.08	0.11
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.8090e-003	2.0600e-003
tblVehicleEF	LHD1	0.10	0.09
tblVehicleEF	LHD1	0.40	0.33
tblVehicleEF	LHD1	0.46	0.35
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tblVehicleEF	LHD2	0.16	0.14
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tblVehicleEF	LHD2	2.84	1.68
tblVehicleEF	LHD2	8.23	13.49
tblVehicleEF	LHD2	524.55	635.14
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tblVehicleEF	LHD2	1.39	0.86
tblVehicleEF	LHD2	1.02	0.66
tblVehicleEF	LHD2	8.8300e-004	1.1720e-003
tblVehicleEF	LHD2	0.06	0.09

tblVehicleEF	LHD2	9.6910e-003	0.01
tblVehicleEF	LHD2	0.01	9.6110e-003
tblVehicleEF	LHD2	5.8400e-004	5.6200e-004
tblVehicleEF	LHD2	8.1200e-004	1.1220e-003
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	2.4230e-003	2.6280e-003
tblVehicleEF	LHD2	0.01	9.1800e-003
tblVehicleEF	LHD2	5.4000e-004	5.1700e-004
tblVehicleEF	LHD2	1.6660e-003	1.4200e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	1.1170e-003	8.8600e-004
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tblVehicleEF	LHD2	0.26	0.11
tblVehicleEF	LHD2	0.27	0.15
tblVehicleEF	LHD2	9.2000e-005	1.3300e-004
tblVehicleEF	LHD2	5.7290e-003	6.1980e-003
tblVehicleEF	LHD2	4.1500e-004	3.3300e-004
tblVehicleEF	LHD2	1.6660e-003	1.4200e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	1.1170e-003	8.8600e-004
tblVehicleEF	LHD2	0.09	0.06
tblVehicleEF	LHD2	0.26	0.11
tblVehicleEF	LHD2	0.29	0.17
tblVehicleEF	MCY	0.00	0.53
tblVehicleEF	MCY	0.00	0.15
tblVehicleEF	MCY	19.34	19.38
tblVehicleEF	MCY	9.99	9.61
tblVehicleEF	MCY	141.51	188.02

tblVehicleEF	MCY	38.62	45.22
tblVehicleEF	MCY	3.6930e-003	4.9370e-003
tblVehicleEF	MCY	1.15	1.13
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	0.04	0.01
tblVehicleEF	MCY	8.0000e-003	4.0000e-003
tblVehicleEF	MCY	3.1700e-004	2.3180e-003
tblVehicleEF	MCY	1.0010e-003	4.0500e-003
tblVehicleEF	MCY	0.02	5.0400e-003
tblVehicleEF	MCY	2.0000e-003	1.0000e-003
tblVehicleEF	MCY	2.6600e-004	2.1680e-003
tblVehicleEF	MCY	8.2800e-004	3.8210e-003
tblVehicleEF	MCY	0.91	1.06
tblVehicleEF	MCY	0.41	0.65
tblVehicleEF	MCY	0.54	0.66
tblVehicleEF	MCY	2.34	2.62
tblVehicleEF	MCY	1.26	0.64
tblVehicleEF	MCY	2.06	2.07
tblVehicleEF	MCY	1.9500e-003	2.2760e-003
tblVehicleEF	MCY	6.5100e-004	6.7000e-004
tblVehicleEF	MCY	0.91	1.06
tblVehicleEF	MCY	0.41	0.65
tblVehicleEF	MCY	0.54	0.66
tblVehicleEF	MCY	2.58	3.25
tblVehicleEF	MCY	1.26	0.64
tblVehicleEF	MCY	2.22	2.25
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	1.95	1.76
tblVehicleEF	MDV	4.02	3.08

tblVehicleEF	MDV	510.84	543.30
tblVehicleEF	MDV	103.50	109.23
tblVehicleEF	MDV	0.12	0.12
tblVehicleEF	MDV	0.24	0.19
tblVehicleEF	MDV	0.37	0.28
tblVehicleEF	MDV	2.4530e-003	2.4870e-003
tblVehicleEF	MDV	3.5970e-003	2.6430e-003
tblVehicleEF	MDV	2.2680e-003	2.2960e-003
tblVehicleEF	MDV	3.3290e-003	2.4340e-003
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.64	0.09
tblVehicleEF	MDV	0.34	0.24
tblVehicleEF	MDV	6.4440e-003	5.4490e-003
tblVehicleEF	MDV	1.3440e-003	1.1470e-003
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.22	0.17
tblVehicleEF	MDV	0.09	0.07
tblVehicleEF	MDV	0.08	0.07
tblVehicleEF	MDV	0.64	0.09
tblVehicleEF	MDV	0.36	0.27
tblVehicleEF	MH	0.00	0.04
tblVehicleEF	MH	0.00	0.03
tblVehicleEF	MH	1.92	3.51
tblVehicleEF	MH	6.53	7.10
tblVehicleEF	MH	608.18	1,138.72
tblVehicleEF	MH	29.11	63.67
tblVehicleEF	MH	1.6850e-003	8.9300e-004

tblVehicleEF	MH	1.11	1.23
tblVehicleEF	MH	0.72	0.89
tblVehicleEF	MH	0.05	0.13
tblVehicleEF	MH	8.4470e-003	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	7.3500e-004	1.5800e-003
tblVehicleEF	MH	0.02	0.06
tblVehicleEF	MH	2.1120e-003	3.1950e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	6.7300e-004	1.4630e-003
tblVehicleEF	MH	0.92	1.16
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.40	0.49
tblVehicleEF	MH	0.07	0.13
tblVehicleEF	MH	1.72	0.02
tblVehicleEF	MH	0.36	0.43
tblVehicleEF	MH	6.7210e-003	0.01
tblVehicleEF	MH	4.3700e-004	7.6100e-004
tblVehicleEF	MH	0.92	1.16
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.40	0.49
tblVehicleEF	MH	0.09	0.18
tblVehicleEF	MH	1.72	0.02
tblVehicleEF	MH	0.39	0.47
tblVehicleEF	MHD	3.6310e-003	8.6690e-003
tblVehicleEF	MHD	0.73	0.61
tblVehicleEF	MHD	920.56	1,158.19
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.65	1.86
tblVehicleEF	MHD	0.11	0.13

tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.8010e-003	3.0000e-003
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.10	0.09
tblVehicleEF	MHD	0.41	0.03
tblVehicleEF	MHD	9.8190e-003	0.01
tblVehicleEF	MHD	0.11	0.11
tblVehicleEF	MHD	0.41	0.03
tblVehicleEF	OBUS	2.9450e-003	0.01
tblVehicleEF	OBUS	0.94	0.67
tblVehicleEF	OBUS	1,042.06	1,273.52
tblVehicleEF	OBUS	2.5090e-003	2.4450e-003
tblVehicleEF	OBUS	2.34	2.06
tblVehicleEF	OBUS	0.10	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.04	0.01
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	2.6680e-003	3.0000e-003
tblVehicleEF	OBUS	0.04	9.9520e-003
tblVehicleEF	OBUS	0.12	0.07
tblVehicleEF	OBUS	0.33	0.04
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.14	0.09
tblVehicleEF	OBUS	0.33	0.04
tblVehicleEF	SBUS	4.4530e-003	0.88
tblVehicleEF	SBUS	5.7170e-003	0.01
tblVehicleEF	SBUS	0.00	0.07
tblVehicleEF	SBUS	1.05	18.81

tblVehicleEF	SBUS	3.49	0.85
tblVehicleEF	SBUS	31.52	18.28
tblVehicleEF	SBUS	547.00	2,651.86
tblVehicleEF	SBUS	1,045.89	1,094.86
tblVehicleEF	SBUS	115.65	124.31
tblVehicleEF	SBUS	5.3100e-004	6.5400e-004
tblVehicleEF	SBUS	7.58	24.12
tblVehicleEF	SBUS	7.22	4.88
tblVehicleEF	SBUS	2.18	6.35
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.58	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	4.5670e-003	1.7910e-003
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.25	0.32
tblVehicleEF	SBUS	2.7650e-003	2.6820e-003
tblVehicleEF	SBUS	0.04	0.03
tblVehicleEF	SBUS	4.2020e-003	1.6470e-003
tblVehicleEF	SBUS	0.04	8.1320e-003
tblVehicleEF	SBUS	0.23	0.07
tblVehicleEF	SBUS	0.10	2.28
tblVehicleEF	SBUS	0.02	3.9750e-003
tblVehicleEF	SBUS	0.34	0.12
tblVehicleEF	SBUS	2.18	0.02
tblVehicleEF	SBUS	1.88	0.96
tblVehicleEF	SBUS	5.7980e-003	0.03
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	1.8370e-003	1.5590e-003
tblVehicleEF	SBUS	0.04	8.1320e-003

tblVehicleEF	SBUS	0.23	0.07
tblVehicleEF	SBUS	0.11	3.28
tblVehicleEF	SBUS	0.02	3.9750e-003
tblVehicleEF	SBUS	0.38	0.14
tblVehicleEF	SBUS	2.18	0.02
tblVehicleEF	SBUS	2.01	1.05
tblVehicleEF	UBUS	0.00	3.00
tblVehicleEF	UBUS	0.00	0.05
tblVehicleEF	UBUS	4.23	12.51
tblVehicleEF	UBUS	7.65	8.85
tblVehicleEF	UBUS	2,019.15	2,009.70
tblVehicleEF	UBUS	19.75	87.72
tblVehicleEF	UBUS	3.1480e-003	2.3710e-003
tblVehicleEF	UBUS	12.01	11.62
tblVehicleEF	UBUS	0.86	1.11
tblVehicleEF	UBUS	0.72	0.64
tblVehicleEF	UBUS	8.0000e-003	0.01
tblVehicleEF	UBUS	0.20	0.15
tblVehicleEF	UBUS	5.5500e-004	9.7400e-004
tblVehicleEF	UBUS	0.31	0.27
tblVehicleEF	UBUS	2.0000e-003	3.0000e-003
tblVehicleEF	UBUS	0.18	0.14
tblVehicleEF	UBUS	5.1500e-004	8.9500e-004
tblVehicleEF	UBUS	4.2320e-003	4.1650e-003
tblVehicleEF	UBUS	0.08	0.07
tblVehicleEF	UBUS	2.3510e-003	2.3230e-003
tblVehicleEF	UBUS	0.75	0.98
tblVehicleEF	UBUS	0.69	0.02
tblVehicleEF	UBUS	0.56	0.66
tblVehicleEF	UBUS	0.02	9.9440e-003

tblVehicleEF	UBUS	3.5700e-004	1.0360e-003
tblVehicleEF	UBUS	4.2320e-003	4.1650e-003
tblVehicleEF	UBUS	0.08	0.07
tblVehicleEF	UBUS	2.3510e-003	2.3230e-003
tblVehicleEF	UBUS	0.83	4.09
tblVehicleEF	UBUS	0.69	0.02
tblVehicleEF	UBUS	0.59	0.72
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CC_TL	10.10	12.30
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CNW_TL	7.90	12.30
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	CW_TL	18.50	12.30
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	ST_TR	2.49	1.73
tblVehicleTrips	ST_TR	1.64	1.18
tblVehicleTrips	SU_TR	0.73	0.51
tblVehicleTrips	SU_TR	0.76	0.55
tblVehicleTrips	WD_TR	6.96	4.85
tblVehicleTrips	WD_TR	11.42	8.24
tblWater	IndoorWaterUseRate	531,875,000.00	74,507,662.00
tblWater	IndoorWaterUseRate	195,507,122.79	27,387,581.00
tblWater	OutdoorWaterUseRate	119,826,946.23	224,547,720.00

2.0 Emissions Summary

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	0.0844	0.0844	2.3000e-004	0.0000	0.0891
Energy											0.0000	11,543.0844	11,543.0844	0.5938	0.1501	11,602.0812
Mobile											0.0000	29,858.7210	29,858.7210	1.5384	0.0000	29,891.0271
Waste											5,813.8642	0.0000	5,813.8642	343.5895	0.0000	13,029.2443
Water											32.3267	869.9611	902.2878	3.3705	0.0888	1,000.5965
Total											**5,846.1908**	**42,271.8509**	**48,118.0418**	**349.0925**	**0.2389**	**55,523.0383**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											0.0000	0.0844	0.0844	2.3000e-004	0.0000	0.0891
Energy											0.0000	11,543.0844	11,543.0844	0.5938	0.1501	11,602.0812

Mobile											0.0000	29,858.7210	29,858.7210	1.5384	0.0000	29,891.0271
Waste											1,453.4660	0.0000	1,453.4660	85.8974	0.0000	3,257.3111
Water											32.3267	869.9611	902.2878	3.3699	0.0887	1,000.5449
Total											**1,485.7927**	**42,271.8509**	**43,757.6436**	**91.3997**	**0.2388**	**45,751.0535**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**74.59**	**0.00**	**9.06**	**73.82**	**0.05**	**17.60**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	3,540.0000
Vegetation Land Change	-3,397.2030
Total	**142.7970**

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	1/1/2016	12/31/2015	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching				0.00	19.80	7.90				

3.1 Mitigation Measures Construction

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	29,858.7210	29,858.7210	1.5384	0.0000	29,891.0271
Unmitigated											0.0000	29,858.7210	29,858.7210	1.5384	0.0000	29,891.0271

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	11,155.00	3,979.00	1173.00	38,968,909	38,968,909
Office Park	9,064.00	1,298.00	605.00	30,203,831	30,203,831
Total	20,219.00	5,277.00	1,778.00	69,172,740	69,172,740

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	12.30	12.30	12.30	59.00	28.00	13.00	100	0	0
Office Park	12.30	12.30	12.30	33.00	48.00	19.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.546128	0.045612	0.202798	0.123113	0.016568	0.006111	0.019369	0.029000	0.002445	0.002371	0.004937	0.000654	0.000893

5.0 Energy Detail

4.4 Fleet Mix

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	tons/yr										MT/yr					
NaturalGas Mitigated											0.0000	1,895.3224	1,895.3224	0.0363	0.0348	1,906.8570
NaturalGas Unmitigated											0.0000	1,895.3224	1,895.3224	0.0363	0.0348	1,906.8570
Electricity Mitigated											0.0000	9,647.7620	9,647.7620	0.5575	0.1153	9,695.2242
Electricity Unmitigated											0.0000	9,647.7620	9,647.7620	0.5575	0.1153	9,695.2242

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.576e+007											0.0000	1,374.6517	1,374.6517	0.0264	0.0252	1,383.0176
Office Park	9.757e+006											0.0000	520.6707	520.6707	9.9800e-003	9.5500e-003	523.8394
Total												**0.0000**	**1,895.3224**	**1,895.3224**	**0.0363**	**0.0348**	**1,906.8570**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Industrial Park	2.576e+007											0.0000	1,374.6517	1,374.6517	0.0264	0.0252	1,383.0176
Office Park	9.757e+006											0.0000	520.6707	520.6707	9.9800e-003	9.5500e-003	523.8394
Total												**0.0000**	**1,895.3224**	**1,895.3224**	**0.0363**	**0.0348**	**1,906.8570**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Industrial Park	2.6243e+007	5,974.1911	0.3452	0.0714	6,003.5812
Office Park	1.6137e+007	3,673.5709	0.2123	0.0439	3,691.6431
Total		**9,647.7620**	**0.5575**	**0.1153**	**9,695.2242**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	2.6243e+007	5,974.1911	0.3452	0.0714	6,003.5812
Office Park	1.6137e+007	3,673.5709	0.2123	0.0439	3,691.6431
Total		**9,647.7620**	**0.5575**	**0.1153**	**9,695.2242**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	0.0844	0.0844	2.3000e-004	0.0000	0.0891
Unmitigated											0.0000	0.0844	0.0844	2.3000e-004	0.0000	0.0891

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	0.0844	0.0844	2.3000e-004	0.0000	0.0891
Total											**0.0000**	**0.0844**	**0.0844**	**2.3000e-004**	**0.0000**	**0.0891**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	0.0844	0.0844	2.3000e-004	0.0000	0.0891
Total											**0.0000**	**0.0844**	**0.0844**	**2.3000e-004**	**0.0000**	**0.0891**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	902.2878	3.3705	0.0888	1,000.5965
Mitigated	902.2878	3.3699	0.0887	1,000.5449

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	74.5077 / 0	244.4947	2.4406	0.0600	314.3369
Office Park	27.3876 / 224.548	657.7931	0.9299	0.0288	686.2596
Total		**902.2878**	**3.3705**	**0.0888**	**1,000.5965**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Industrial Park	74.5077 / 0	244.4947	2.4402	0.0599	314.2992
Office Park	27.3876 / 224.548	657.7931	0.9298	0.0288	686.2458
Total		**902.2878**	**3.3699**	**0.0887**	**1,000.5449**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,453.4660	85.8974	0.0000	3,257.3111
Unmitigated	5,813.8642	343.5895	0.0000	13,029.2443

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	19375	3,932.9499	232.4307	0.0000	8,813.9942
Office Park	9266	1,880.9143	111.1589	0.0000	4,215.2501

Total		5,813.8642	343.5895	0.0000	13,029.2443

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	4843.75	983.2375	58.1077	0.0000	2,203.4986
Office Park	2316.5	470.2286	27.7897	0.0000	1,053.8125
Total		**1,453.4661**	**85.8974**	**0.0000**	**3,257.3111**

9.0 Operational Offroad

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

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	142.7970	0.0000	0.0000	142.7970

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	86 / 0	-533.2000	0.0000	0.0000	-533.2000
Grassland	63.3 / 0	-272.8230	0.0000	0.0000	-272.8230
Scrub	37.6 / 0	-537.6800	0.0000	0.0000	-537.6800
Trees	18.5 / 0	-2,053.5000	0.0000	0.0000	-2,053.5000
Wetlands	0.6 / 0	0.0000	0.0000	0.0000	0.0000
Total		**-3,397.2030**	**0.0000**	**0.0000**	**-3,397.2030**

10.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	5000	3,540.0000	0.0000	0.0000	3,540.0000
Total		**3,540.0000**	**0.0000**	**0.0000**	**3,540.0000**