Appendix H

Climate Change Technical Report

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Draft Climate Change Technical Report for the McClellan-Palomar Airport Master Plan Update

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December 2017

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Glossary of Terms and Acronyms

AB 32: Assembly Bill 32

AB 197: Assembly Bill 197

ACC: Advanced Clean Cars

ACRP: The Airport Cooperative Research Program

AEDT: Aviation Environmental Design Tool

AMAP: Airport Multimodal Accessibility Plan

APUs: Auxiliary Power Units

AVGAS: Aviation Gasoline

CAA: Clean Air Act

CalEEMod: California Emissions Estimator Model

CAPCOA: California Air Pollution Control Officers Association

CAP: Climate Action Plan

CARB: California Air Resource Board

CEC: California Energy Commission

CEQA: California Environmental Quality Act

CEQ: Council on Environmental Quality

CH_4: Methane

CO_2: Carbon Dioxide

CO_{2e}: Carbon dioxide equivalent. In order to measure and compare GHG pollutants, emissions are calculated in terms of CO_2 equivalents, which is the universal unit of measurement used to indicate the global warming potential (GWP) for different GHG. Represented as CO_{2e}, these values range from "1" for CO_2 to "25" for CH_4 to "298" for N_2O. For refrigerants, the GWP for R-134a of 1,430 and for HCFC-123 of 93 are typically used.

eGSE: Electric Ground Service Equipment

EIR: Environmental Impact Report

EMAS: Engineered Materials Arresting System

EMFAC2014: A model that calculates air pollution emission factors from motor vehicles.

FAA: Federal Aviation Administration

GAV: Ground Access Vehicle Equipment

GHG: Greenhouse Gas – There are several types of GHG pollutants including carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), hydroflorocarbons (HFCs), perfluorcarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

GSE: Ground Service Equipment

HFCs: Hydroflorocarbons

MAP: Million Annual Passengers

$MMTCO_{2e}$: Million Metric Tons of CO_{2e}

MT: Metric Tons

NEPA: National Environmental Policy Act

N_2O: Nitrous Oxides

NO_x: Nitrogen Dioxide

PAL: Passenger Activity Level

PFC: Perflurocarbons

RASP: Regional Aviation Strategic Plan

RTP: Regional Transportation Plan

SANDAG: San Diego Association of Governments

SB 375: California Senate Bill 375

SCS: Sustainable Communities Strategy

TPY: Tons per year

SDCRAA: San Diego County Regional Airport Authority

USEPA: United States Environmental Protection Agency

VMT: Vehicle Miles Traveled

ZNE: Zero Net Energy

Executive Summary

This report presents an assessment of whether potential climate change impacts would occur involving greenhouse gas emissions (GHG) related to the implementation of the Airport Master Plan (Proposed Project) at McClellan-Palomar Airport (Airport).

The Proposed Project is located within the municipal limits of the City of Carlsbad on Airport property. The Airport is owned and operated by the County of San Diego (County). In accordance with the California Environmental Quality Act (CEQA), the County is the lead CEQA agency responsible for determining the significance of the Proposed Project on climate change.

The Proposed Project improvements are split into three phases: near term (0-7 years), intermediate term (8-12 years), and long term (13-20 years). The improvements include the demolition of existing airport infrastructure and the reconstruction of facilities to meet Federal Aviation Administration (FAA) design standards for the classification of the Airport. This includes potential phased lengthening of Runway 06-24 from 4,897 ft. to an ultimate length of 5,697 ft., shifting the runway 123 ft. to the north, movement and restriping of taxiways and other aircraft movement areas, and shifting of navigational aids. Long-term aviation forecasts for the airport indicate that the airport may accommodate up to 575,000 commercial enplanements in the next 20-year time period. The CEQA analysis incorporates emissions analysis for the range of potential commercial air service use.

An emissions inventory was prepared to compare the annual net increase in GHG emissions potentially generated as a result of the construction and operation of the Proposed Project in accordance with federal, state, and local policies/regulations. As outlined in the FAA-sponsored Airport Cooperative Research Report 11 conducted by the Transportation Research Board, *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories*, the boundaries of a GHG emissions inventory are based upon emission sources and are described in terms of scope:

- Scope 1 (Direct) – GHG emissions from sources that are owned and controlled by the airport operator (County).
- Scope 2 (Indirect) – GHG emissions associated with the generation of electricity purchased/consumed by the airport operator (County).
- Scope 3 (Indirect and Optional) – GHG emissions that are associated with the activities of the airport operator (County), but are associated with sources that are owned and controlled by others.

After calculating the emission inventories for the Proposed Project, it can be concluded that although the Proposed Project would contribute to GHG emissions, this effect would not be significant, and forecasted increases in emissions are consistent with all applicable GHG reduction plans.

Section 1—Introduction

1.1 Purpose of the Report

The County of San Diego (County) Department of Public Works is preparing an Airport Master Plan Update for McClellan-Palomar Airport (Airport or CRQ). The objective of the Airport Master Plan is to develop an outline of airside and landside facility improvements for the next 20-year planning period in order to maximize safety and operational efficiency, in accordance with aviation forecasts and market trends. Alternative plans were analyzed based on a multitude of criteria including land use opportunities and constraints, phasing, financial feasibility, stakeholder and public input, and environmental impacts throughout the planning process. The purpose of this document is to assess the significance of climate change impacts associated with the preferred Master Plan development alternative (Proposed Project). This involves quantification of greenhouse gas (GHG) emissions for the construction and operation of the Proposed Project; a review of applicable plans, policies, and/or regulations adopted for reducing the emissions of GHG pollutants; and consideration of potential impacts to climate change associated with the Proposed Project.

1.2 Project Location and Description

The County owns 454 acres in and around the Airport, including land used for non-aviation purposes. The property is located within the municipal limits of the City of Carlsbad. Approximately 231-acres of the County-owned property make up the Airport Master Plan project study area. This includes the active airfield, tenant lease-holds, aircraft and auto parking, passenger terminal building, and administrative facilities located north of Palomar Airport Road at Yarrow Drive.

The Proposed Project has three phases: near term (0-7 years), intermediate term (8-12 years), and long term (13-20 years). The phased improvements are on **Figure 1**. The following describes the Proposed Project components included in the near-term phase:

1. Relocation of the Glideslope Building and Antenna
2. Relocation of the Segmented Circle and Windsock Equipment
3. Relocation of the Aircraft Rescue and Fire Fighting Facility
4. Construction of Engineered Materials Arrestor System (EMAS) for Runway 24
5. Relocation of the Vehicle Service Road
6. Relocation of Lighting Vault
7. 200-foot Extension of Existing Runway and Taxiway A

The following describes the Proposed Project components included in the intermediate-term phase:

8. Removal of Fuel Farm on North Apron
9. Removal of the North Apron and Taxiway N
10. Area Reserved for Future General Aviation Parking
11. Passenger / Admin / Parking Facility Improvements

The following describes the Proposed Project components in the long-term phase:

12. Relocation and Extension of Runway 06-24 (includes relocation of navigational aids)
13. Remove/Reconstruct Existing Connector Taxiways
14. Removal/Reconstruction of Existing Taxiway A (includes lighting)
15. Construction of EMAS System for Runway 06
16. Relocation / Reconstruction of EMAS System for Runway 24

McClellan-Palomar Airport Master Plan

Proposed Project

Figure 1

CONCEPTUAL DEVELOPMENT PHASES/FEATURES:

NEAR-TERM (0-7 YEARS)

1. Relocation of the Glideslope Building and Antenna
2. Relocation of the Segmented Circle and Windsock Equipment
3. Relocation of ARFF Facility
4. Construction of EMAS System for RWY 24
5. Relocation of the Vehicle Service Road
6. Relocation of Lighting Vault
7. 200' Extension of Existing RWY 06-24 and TWY A

INTERMEDIATE-TERM (8-12 YEARS)

8. Removal of Fuel Farm on North Apron
9. Removal of the North Apron and TWY N
10. Area Reserved for Future GA Parking
11. Passenger/Admin/Parking Facility Improvements

PHASE 3: LONG-TERM (13-20 YEARS)

12. Relocation 123' North/Extension of RWY 06-24 (Includes REILs, PAPIs, Localizer Antennae and MALSRs)
13. Removal/Reconstruction of Existing Connector Taxiways
14. Removal/Reconstruction of Existing TWY A (Includes Lighting)
15. Construction of EMAS System for RWY 06
16. Relocation of EMAS System for RWY 24

Source: McClellan-Palomar Airport Master Plan: Kimley Horn

Section 2—Existing Conditions

2.1 Existing Setting

McClellan-Palomar Airport encompasses approximately 231 acres with an elevation of 330.5 feet mean-sea-level on top of a mesa with steep vertical drops on almost all sides. An on-site landfill was operated by the County as a municipal solid waste disposal facility from 1962 to 1975. After the landfill ceased operations, methane (CH_4) extraction wells were installed including groundwater monitoring wells on what now makes up airport property. There are three inactive landfills cells on the property, two underneath the aircraft parking aprons and one immediately to the east of the Runway 24 blast pad. The Airport property is zoned Industrial (M), by the City of Carlsbad. The property consists of government (airport) facility land uses, and the surrounding area consists of industrial and mixed land uses that include commercial and utilities.

2.2 Climate & Meteorology

The climate of the City of Carlsbad, located on the southern coast of California, is considered a semi-arid Mediterranean climate, with an average of 263 sunny days per year. Average monthly lows reach 45 degrees Fahrenheit (°F) in the winter months and 71 degrees (°F) in the summer months. Similarly, San Diego County is classified as an arid climate, with average temperatures ranging from 57 degrees (°F) in the winter to 72 degrees (°F) in the summer months. Average precipitation for the City of Carlsbad is 11.84 inches, ranging from 0.30 inches in the summer to 6.66 inches during the winter. San Diego County has an average rainfall of 12 inches.

Wind patterns surrounding the Airport are predominantly westerly. Seasonal weather patterns include the Santa Ana winds, which occur 10 days out of the year between September and February. Santa Ana winds are warm winds that flow from east to west from the desert that bring sometimes hot but always dry conditions to the area. Another noteworthy seasonal weather pattern is the prominence of cloudy, foggy conditions during May and June caused by a warm air mass that descends over the cool, moist marine air.

2.3 Environmental Setting

In order to establish the baseline conditions, this Technical Report identifies the existing Airport-related uses that generate GHG emissions and their associated GHG emissions.

Specifically, the Airport currently generates GHG pollutants typical of aircraft combustion engines, including carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), hydroflorocarbons (HFCs), perfluorcarbons (PFCs) and sulfur hexafluoride (SF_6). Notably, CO_2, CH_4, and N_2O are the predominant GHG pollutants associated with airport

operations. The other GHG pollutants occur at a far lesser extent. Therefore the only pollutants discussed in this report are CO_2, CH_4, and N_2O. In order to measure and compare these GHG pollutants, emissions are calculated in terms of CO_2 equivalents, which is the universal unit of measurement used to indicate the global warming potential (GWP) for different GHG pollutants. Represented as CO_{2e}, these values range from "1" for CO_2 to "25"for CH_4 to "298" for N_2O.

The Airport Cooperative Research Program (ACRP) Report 11, *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories* defines airport GHG emissions in terms of scope. Based on this guidance, the boundaries of the GHG emissions inventory are based upon the emission sources described below:

- Scope 1 (Direct) – GHG emissions from sources that are owned and controlled by the airport operator (e.g., the County) such as stationary sources and County-owned fleet motor vehicles.
- Scope 2 (Indirect) – GHG emissions associated with the generation of electricity purchased/consumed by the airport operator (County).
- Scope 3 (Indirect and Optional) – GHG emissions that are associated with the activities of the airport operator (County), but are associated with sources that are owned and controlled by others. These include aircraft-related emissions, emissions from airport tenant activities, electrical consumption by tenants (if the electricity is not purchased by the County), as well as ground transportation to and from the Airport.

As shown in **Table 1**, the primary sources of GHG emissions include aircraft; ground support equipment (GSE); a small assortment of stationary sources; and motor vehicles operating on the internal roadways, parking facilities, and off-airport roadways. In general, these sources are typical of most airports of McClellan-Palomar's size and function. Emissions associated with the consumption of electricity at the Airport (but generated elsewhere by solar, oil, and natural gas) are also included.

The emissions generated from these sources primarily arise from the combustion of fossil fuels (i.e., jet fuel, Aviation Gasoline [AVGAS,] diesel, gasoline, natural gas, etc.) and are by-products contained in the engine exhausts. These emission sources constitute the majority of the baseline (2016) emissions inventory estimated for the Airport.

Construction activities also represent sources of air emissions at the Airport, but they are short-term and intermittent. Nevertheless, construction emissions will also be addressed in the Master Plan Update Program Environmental Impact Report (EIR) in accordance with CEQA requirements.

Table 1 presents emissions sources at the Airport and their applicable Scope of Emissions category.

Table 1 - Sources of Airport GHG Emissions

Source	Characteristics of Emissions	Scope[a]
Aircraft	Exhaust products of fuel combustion that vary depending on aircraft engine type, fuel type (Jet-A, AVGAS), number of engines, power setting and time-in-mode (i.e., taxi/idle, take-off, cruise), and amount of fuel burned. This includes emissions associated with the use of Auxiliary Power Units (APUs).	3
GSE	Exhaust products of fuel combustion from aircraft service trucks, tow tugs, belt loaders, and other portable equipment.	1 and 3
Ground Access Vehicles (GAV)	Exhaust products of fuel combustion from airport operations staff, passengers, employee and cargo motor vehicles approaching, departing, and moving about the airport site. These include automobiles, vans, trucks, and buses. Emissions vary depending on vehicle and fuel type (i.e., gasoline, diesel, etc.) and the amount of fuel consumed.	1 and 3
Stationary sources and fuel facilities	Exhaust products of fossil fuel combustion in boilers for space heating and emergency generator units. Evaporative emissions from fuel storage and transfer facilities and fugitive emissions of refrigerant and cooling system gases are also included.	1 and 3
Electrical Consumption	Emissions associated with the production of electricity at off-site utilities that use coal, oil or natural gas.	2 and 3
Construction	Emissions associated with fossil fuel combustion from construction equipment such as backhoes, cranes, dozers, loaders, haul trucks, and excavators.	1
Refrigerants[b]	Emissions associated with the use of refrigerants in chillers and air conditioning units. As noted, GHG emissions are not quantified in this Technical Report.	1 and 3

Notes:

(a) Based on guidance provided in the ACRP Report 11, *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories.*

(b) Although refrigerants are listed as a source of GHG emissions, refrigerant production at the Airport is low and no increase of refrigerants is associated with the Proposed Project. Therefore, refrigerants were omitted from this analysis.

Source: C&S Companies, Inc. 2017.

Scope 3 emission sources are not under the County's ownership or direct control. In particular, the County has no jurisdiction over the quantity, type, or flight track of aircraft operations or their emissions, which are under the jurisdiction of the Federal Aviation Administration (FAA). Aviation related emissions standards are a relatively new concept within climate change analysis; with limited standard practices for evaluating, monitoring, and mitigating its effects. The County has no authority to regulate aircraft or their emissions; and there is no applicable methodology or threshold with which to evaluate the significance as stated in the Assembly Bill 32 (AB 32) Climate Change Scoping Plan (further discussed in section 2.4.2).

2.4 Regulatory Setting

2.4.1 Federal Regulations and Standards

The following federal regulations and guidance were considered as part of this climate change analysis.

April 2007 U.S. Supreme Court Ruling

In *Massachusetts et al. vs. Environmental Protection Agency et al.* 549 U.S. 497(2007), the U.S. Supreme Court ruled that GHGs were not excluded from regulation as a pollutant under the Clean Air Act (CAA). The Supreme Court did not mandate that U.S. Environmental Protection Agency (USEPA) to enact regulations to reduce GHG emissions, but found that the USEPA could regulate GHGs as a pollutant if it made the appropriate findings under the CAA.

The USEPA first considered developing a federal policy framework for aviation related GHG emissions in 2011. In August 2016, the EPA determined that GHG emissions from certain aircraft pose a public health hazard by finalizing findings under section 231(a) of the CAA. Further federal evaluation of policies surrounding aviation related GHG emissions are pending.

National Environmental Policy Act

FAA Order 1050.1F

FAA Order 1050.1F outlines the policy and procedures for compliance with the National Environmental Policy Act (NEPA) and the implementation of regulations issued by the Council on Environmental Quality (CEQ). In reference to climate, the order states that aviation sources were estimated by the Intergovernmental Panel on Climate Change to account for 4.1 percent of global transportation GHG emissions and commercially, 6.6 percent of total CO_2 emissions in the United States as estimated by the USEPA for the year 2013. FAA Order 1050.1F maintains that scientific research into understanding the relationship between aviation and climate change is ongoing and that despite the obstacles

that uncertainty presents minimizing and identifying GHG emissions and their potential future impacts to climate change are important for a sustainable national airspace system.

CEQ Guidance for NEPA Review

On August 3, 2016, the CEQ published the memorandum, *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effect of Climate Change in National Environment Policy Act Reviews*. The CEQ indicated that climate change should be considered in NEPA analyses; however there are no specific federal standards for aviation-related GHG emissions. The CEQ[1] issued final guidance for addressing climate change suggesting that agencies consider "(1) The potential effects of a proposed action on climate change as indicated by assessing GHG emissions; and, (2) The effects of climate change on a proposed action and its environmental impacts" (CEQ, August 1, 2016). The FAA's Aviation Environmental Design Tool (AEDT) version 2d software is the leading modeling methodology used to analyze the potential impacts of aviation related GHG emissions in the absence of aviation specific NEPA guidelines. The guidance does not establish a significant impact threshold for GHG pollutants. The guidance states that "In light of the global scope of the impacts of GHG emissions, and the incremental contribution of each single action to global concentrations, CEQ recommends agencies use the projected GHG emissions associated with proposed actions as a proxy for assessing proposed actions' potential effects on climate change in NEPA analysis" (CEQ, August 3, 2016). This guidance has been responsible for providing the most relevant means of assessing the potential effects of a proposed project on climate change.

Although this analysis has not been prepared to specifically meet NEPA requirements, this technical report utilizes the CEQ-recommended guidance to quantify and disclose the Proposed Project's potential increase to aviation-related GHG emissions in accordance with 2017 CEQA Guidelines, Appendix G.

As of April 5, 2017, the above-referenced CEQ guidance has been withdrawn and is under further evaluation. Although withdrawn, the valuable methods proposed by this guidance for evaluating aviation related GHG emissions continue to be used by the FAA and have been determined to be the most applicable guidance for aviation sources and the Proposed Project.

[1] https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf

2.4.2 State Regulations and Standards

The following state regulations and standards were considered as part of this analysis.

California Assembly Bill 32

In 2006, the California state legislature passed AB 32 in an effort to reduce the impact from climate change. The passage of AB 32 requires the State of California reduce GHG emissions to 1990 levels by the year 2020. GHGs included under the bill include CO_2, CH_4, nitrous oxide (NO_X), HFC, PFC, SF_6, and nitrogen trifluoride (NF_3).

CARB Scoping Plan

AB 32 required the California Air Resource Board (CARB) to develop a Scoping Plan to outline California's approach to achieving the goal of reducing GHG emissions to 1990 levels by 2020. The CARB in 2008 approved the first Scoping Plan, and the First Update (an update is required every five years) on May 22, 2014. The next update to the Scoping Plan will reflect the mid-term GHG reduction target of 40 percent below 1990 levels by 2030, established by Executive Order (EO) B-30-15. The CARB Scoping Plan updated the 2020 emissions limit to 431 million metric tons of CO_{2e} ($MMTCO_{2e}$). Cap-and-Trade emission reductions of 23 $MMTCO_{2e}$, and sector-based measure reductions of 25 $MMTCO_{2e}$ from Energy, 23 from Transportation, 5 from High-GWP, and 2 from Waste, will be required to meet the limit.

The AB 32 Climate Change Scoping Plan states "the State does not have regulatory authority over aviation" and "the California Air Resource Board (ARB) has not identified aviation specific measures."

California Senate Bill 375 (SB 375)

In September 2008, the Governor approved California Senate Bill 375 (SB 375), which directs CARB to set regional targets for reducing GHG emissions. The law establishes a "bottom up" approach to ensure that cities and counties are involved in the development of regional plans to achieve those targets.

SB 375 builds on the existing framework of regional planning to tie together the regional allocation of housing needs and regional transportation planning in an effort to reduce emissions from motor vehicle trips.

Executive Orders S-3-05 and B-30-15

Executive Order S-3-05

EO S-3-05 is a State EO , signed in June 2005, which set GHG emissions reduction targets for California. The Order also specified the state agencies responsibilities for implementing and reporting on the EO. The EO established three GHG emission reduction targets;

reduce to 2000 levels by 2010, reduce to 1990 levels by 2020, and reduce to 80 percent below 1990 levels by 2050. AB 32 includes the first and second targets of this EO as requirements for the state.

California Executive Order B-30-15

California EO B-30-15, signed in April 2015, added an intermediate GHG emissions reduction target. This target is set as the reduction of GHG emissions to 40 percent below 1990 levels by 2030.

Senate Bill 32 and Assembly Bill 197 of 2016

In September 2016, California Governor Brown signed SB 32, which serves to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize the CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the state's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Governor Brown also signed AB 197 (Garcia, Chapter 250, Statutes of 2016) as a companion bill to SB 32. AB 197 creates a legislative committee to oversee CARB and requires CARB to take specific actions when adopting plans and regulations pursuant to SB 32 related to disadvantaged communities, identification of specific information regarding reduction measures, and information regarding existing GHG at the local level.

California Environmental Quality Act (CEQA)

In 2010, the CEQA Guidelines (with Appendix G) were amended to address the analysis of greenhouse gas emissions. Although climate change is generally not considered a direct impact, it should be analyzed as a potential cumulative impact under CEQA. Based on the California Air Pollution Control Officers Association (CAPCOA) white paper titled *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, projects should be screened (if they exceed the size parameters identified) to determine if their associated GHG emissions exceed 900 metric tons (MT) of CO_{2e}. If a project exceeds this threshold, a Climate Change Analysis would need to be completed to analyze any potential project-specific impact.

The significance criteria used in the Climate Change analysis should include a statement and supporting analysis as to whether the project complies with GHG reduction requirements under AB 32 for the year 2020; and whether the subject project is on the trajectory towards GHG emission reduction goals of EOs S-3-05 and B-30-15 at build-out.

There are no formally approved CEQA significance thresholds applicable to aviation sources and their contribution to climate change. In the absence of thresholds for airport-related

GHG emissions, Appendix G of to the State CEQA Guidelines is used to determine significance.

California Building Efficiency Standards

The California Energy Commission (CEC) established the California Building Efficiency Standards in the 1970s with updates occurring on a three-year cycle.[2] The Standards include energy and water efficiency as well as indoor air quality requirements for constructed buildings and additions or alterations to existing facilities. The Standards apply to both residential and nonresidential buildings and help minimize climate change by reducing GHG emissions through increased efficiency.

California Building Efficiency Standards (Title 24, Part 6)

Buildings in California are required to comply with California's Building Energy Efficiency Standards for Residential and Non-residential Buildings established by CEC regarding energy conservation standards and found in Title 24, Part 6 of the California Code of Regulations. The standards were first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

CEC adopted the 2016 Building Energy Efficiency Standards for Residential and Nonresidential Buildings in 2015 (2016 Title 24 standards). The 2016 Title 24 standards went into effect on January 1, 2017. All buildings for which an application for a building permit is submitted on or after January 1, 2017 must follow the 2016 Title 24 standards (CEC 2015).

The CEC is required to adopt standards every three years that are cost effective for homeowners over the 30-year lifespan of a building. The standards are updated to consider and incorporate new energy efficient technologies and construction methods. The standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants and help preserve the environment. In 2008, California set energy-use reduction goals, targeting zero net energy (ZNE) use in all new commercial buildings by 2030. The ZNE goal means new buildings must use a combination of improved efficiency and distributed renewable energy generation to meet 100 percent of their annual energy need.

Advanced Clean Cars Program

In January 2012, the CARB approved the emissions-control program, Advanced Clean Cars (ACC), for model years 2017 through 2025. The program is a set of standards that combines control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles. These standards call for the following by 2025: new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions;

[2] http://www.energy.ca.gov/title24/

environmentally superior cars will be available across the range of models, from compacts, to SUVs, pickups and minivans; and consumer savings on fuel costs will average $6,000 over the life of the car. The fuel cost savings will more than offset the average $1,900 increase in vehicle price for the ultra-clean, high-efficiency technology.

When the CARB adopted the ACC program in 2012, it committed to conduct a comprehensive review of elements of the program to determine their applicability. On November 30, 2016, USEPA[3] released a finding that the GHG standards remain appropriate and that a rulemaking to change them is not warranted.

2.4.3 Regional and Local Regulations, Plans, and Standards

2.4.4 County Plans and Guidance

In the absence of established County or State CEQA thresholds for GHG emissions from aircraft operation sources, the following Appendix G criteria shall apply to determine if the proposed project would:

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

For non-aircraft ground and construction GHG sources, the County shall use an efficiency metric to determine if a proposed project that potentially exceeds CAPCOA's 900 MT CO_{2e} screening criteria (see CEQA overview discussed above) would have a significant impact. A quantitative GHG analysis should be conducted and the project's efficiency may be determined by using the California-wide GHG emission inventory of 4.9 MT CO_{2e} provided by CAPCOA, the applicable efficiency metrics derived for 2020 and the project build-out year (if post-2020) as described below:

- Year 2020 – 4.9 MT CO_{2e}/SP/year
  (SP refers to the project's service population [residents + employees])
- Build-out Year – As a part of the phased 20-year Master Plan, the County anticipates that some projects would have build-out dates beyond 2020. CAPCOA recommends quantification of project emissions for the year the project is anticipated to be fully constructed (built out), in addition to 2020, and make a significance determination relative to the emissions reduction.

[3] https://www.arb.ca.gov/msprog/acc/acc.htm

As previously discussed, the CARB has indicated in their 2030 Target Scoping Plan that California GHG emissions would need to be reduced at an annual average rate of 5.2 percent between 2020 and 2050, representing an emission reduction downward direction necessary to meet the goals advocated in Executive Orders S-3-05 and B-30-15.

It should be noted that the CAPCOA screening threshold is intended for specific, individual new development projects. As a long-term planning document, the Master Plan and Program EIR is therefore unique for several reasons:

1. The Program EIR approaches the set of infrastructure improvements as programmatic, i.e., addressing a number of development projects over phases included in the Airport Master Plan based on sequential timing and/or demand;
2. The projects included in the Airport Master Plan involve additional elements of an existing facility (the Airport) or improvements to existing facilities rather than new development; and
3. The phasing and timing of individual projects are subject to funding availability, design engineering review, and FAA approval, so construction scale and schedule are not guaranteed.

For the reasons listed above, the CAPCOA thresholds would not be applicable to the overall Airport Master Plan build-out, tentatively scheduled to be complete in 2036. Therefore, construction emissions associated with the 16 projects outlined in Figure 1 will be individually quantified and compared to the 900 MT threshold (or resultant thresholds for years beyond 2020); the Efficiency Metric will be applied to those individual projects that exceed this threshold to determine significance.

San Diego Association of Governments Regional Transportation Plan

The San Diego Association of Governments (SANDAG) Board of Directors adopted the 2050 Regional Transportation Plan (RTP) on October 28, 2011. The RTP provides a vision of the region's transportation system for the next 40 years. SANDAG's SB 375 target is to reduce regional GHG emissions from cars and light trucks by seven percent, per capita, by 2020, and by 13 percent by 2035 (compared to a 2005 baseline), through land use and transportation planning.

As part of the EIR completed by SANDAG for the RTP/Sustainable Communities Strategy (SCS), an inventory of future GHG emissions were calculated and used as the basis to help determine emission reduction strategies. Emissions calculations related to vehicular traffic patterns at airports located in the County were derived from transportation improvements recommended in the Airport Multimodal Accessibility Plan (AMAP) and the Regional Aviation Strategic Plan (RASP), prepared by the San Diego County Regional Airport Authority (SDCRAA). Specific to the Airport, the AMAP selected Scenario 1C of the RASP to determine the future increase in vehicular traffic coming to and from the Airport.

Scenario 1C included 641,355 forecasted passenger enplanements at the Airport by the year 2030[4].

Sustainable Communities Strategy (SCS)

The SCS, an element of SANDAG's 2050 RTP, was developed in accordance with SB 375 and was adopted on October 28, 2011. The SCS details how the region will reduce GHG emissions to state-mandated levels set by the CARB through development patterns and transportation network, policies, and programs. The established target calls for the region to reduce per capita emissions seven percent by 2020 and 13 percent by 2035, from a 2005 baseline.

City of Carlsbad California Climate Action Plan (CAP)

In 2015, the City of Carlsbad prepared the Climate Action Plan (CAP) concurrently with the City's updated General Plan. The CAP was designed to help reduce the City's GHG emissions and streamline environmental review of future development projects in the City in accordance with CEQA. It should also be noted that the CAP acknowledged that the Airport is County owned and operated, and is outside of the City's oversight and authority. Construction and operational emissions associated with the airport were not included in the City CAP's overall strategy to reduce GHG emissions.

[4] See Table Appendix B and Figure 6.4 of the RASP.

Section 3—Emissions Inventory

3.1 Sources

In order to quantify and disclose the Proposed Project's potential increase to GHG emissions in accordance with the 2017 CEQA Guidelines Appendix G, an emissions inventory was prepared for both construction and operational sources. For construction sources, GHG emissions were inventoried for each individual project (see Figure 1) to determine the net increase in GHG emissions associated with construction activities. For operational sources an emissions inventory was prepared for the annual net increase in GHG emissions that would be generated as a result of full implementation of the Proposed Project (assuming a build-out year of 2036).

Although individual components of the Airport Master Plan are subject to FAA approval and funding, construction will be administrated and performed under the County's authority, and all construction emissions would be considered Scope 1. Construction of the Proposed Project would generate GHG emissions from the following sources:

- Off-road heavy-duty equipment including but not limited to dozers, loaders, forklifts, and tractors.
- On-road heavy-duty equipment such as haul trucks used to transport material to and from the project site.
- On-road passenger vehicles, including from workers commuting to and from the site.

Operation of the Proposed Project could be associated with a net change in GHG emissions from the following sources:

- Aircraft emissions from a net change in taxiway operations relative to the proposed shift of Runway 6-24 (Scope 3).
- Stationary source (i.e., large boilers) emissions from a net change in equipment usage relative to the No-Project Alternative (Scope 1). Only County owned facilities are anticipated to expand under the Proposed Project.
- Area source building emissions (i.e., natural gas) from a net change in landside development square footage (Scope 1). Only County owned facilities are anticipated to expand under the Proposed Project.
- Aircraft emissions associated with potential increased commercial passenger use.

Proposed Project infrastructure improvements are scheduled to be carried out over the 20-year planning period to improve operational efficiency and aircraft safety at the Airport, and are not intended to increase airport capacity. Regardless of whether or not the Proposed Project improvements are constructed, GHG emissions associated with the following

sources are anticipated to increase over the 20-year planning as forecasted aviation demand rises. However, they were still quantified for the purposes of this Technical Report.

- Aircraft emissions from a net change in the number of aircraft operations over the Future Conditions (2036) Proposed Project scenarios relative to the Future Conditions (2036) No-Project Alternative (Scope 3).
- Airport-owned ground access vehicles (GAV; i.e., maintenance trucks). Net change related to on-airport property and off-airport property vehicle miles traveled (VMT) compared to the Future Conditions (2036) No-Project Alternative (Scope 1).
- Non-airport-owned GAV (i.e., passenger vehicles, vendor shuttle buses). Net change related to on-airport property and off-airport property VMT compared to the Future Conditions (2036) No-Project Alternative (Scope 3).
- GSE emissions from a net change in GSE operations relative to the Future Conditions (2036) No-Project Alternative (Scope 3).

3.2 Methodology

The issue of global climate change is inherently a cumulative issue, as the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective (CAPCOA 2008). Accordingly, discussion of the Proposed Project's GHG emissions and impact on global climate are addressed in terms of the Proposed Project's contributions to a cumulative impact on the global climate.

3.2.1 Construction Emissions

The net change in GHG emissions were calculated for the three phases of development construction including the near-, intermediate-, and long-term phases. For the Future No-Project Alternative, a zero increase in construction emissions was anticipated, since the Proposed Project would not be constructed.

For the Proposed Project, the estimated emissions were based on construction of the project components as well as the vehicle emissions from transporting subbase, asphalt, and aggregate material to the site. ACRP Report 11 (Transportation Research Board 2007) provides guidance on what methods are to be used when analyzing vehicular GHG emissions. As prescribed by Method 3, the use of vehicle-specific VMT data with industry published modeling methodologies are to be used to calculate vehicle-specific emission factors.

Emissions from construction vehicles were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 CalEEMod is the California statewide

emissions computer model used to quantify GHG emissions and potential criteria pollutants for construction and operation activities (includes vehicle use) and meets the criteria of Method 3 from ACRP Report 11. The list of construction projects from the Master Plan and phasing schedule (as shown in Figure 1) were used to generate inputs relating to durations, quantities, VMT (see **Appendix B**), and equipment fleet mix in the model. The values were entered as either known or left as the default value provided by CalEEMod. The County provided assumptions for durations of the work and demolition volumes. Construction durations were based on an assumption of 420 square yards of pavement removal per shift and 2,000 cubic yards of asphalt/concrete pavement production per shift. Demolition volumes were based on a pavement density of 2.1 tons per cubic yard of pavement. CalEEMod provides default equipment populations and hours used per shift for each project type selected. If additional equipment were required, these were manually entered into the model. All CalEEMod results and assumptions are detailed in **Appendix A** to this document.

3.2.2 Operational Emissions

For calculating operational emissions related to aircraft, GSE and APU, the most recent version of the FAA's AEDT version 2d software system was used (see **Appendix B**).

Aircraft activity levels, fleet mix, and other Airport-specific operational characteristics (e.g. average taxi times) were obtained from the Airport Master Plan, discussions with airport staff and FAA published information. Aircraft operations for existing conditions (2016) were obtained from the FAA Air Traffic Activity System. For future conditions (2036), aircraft operations were obtained from the aviation demand forecasts prepared as part of the Airport Master Plan. The Airport Master Plan developed a number of separate scenarios, based on the anticipated demand of commercial operations at the Airport. Two scenarios, reflective of forecasted passenger activity levels (PAL), were selected for further evaluation. The first scenario (PAL 1) includes 195,050 annual aircraft operations. The second scenario (PAL 2), which includes 208,004 annual aircraft operations was also evaluated. Due to the discretionary nature of allowing commercial service at the Airport, a third scenario was also evaluated in this analysis which included the forecasted growth of aircraft operations at CRQ without the commercial service operations reflected in PAL 1 and PAL 2. This scenario (Forecasted Growth) included 180,450 annual aircraft operations in 2036.

GSE and APU utilization information was derived from on-site surveys conducted at the Airport and supplemented with AEDT data, wherever necessary.

Operational emissions from on-road vehicles were estimated using a combination of CalEEMod and the latest CARB developed EMFAC2014 on-road vehicle emissions model (Helix Environmental Planning 2017). EMFAC2014 has not yet been incorporated into CalEEMod; therefore, EMFAC2014 was used to generate emission factors which were used

in conjunction with calculated VMTs. EMFAC2014 was then used to generate San Diego Air Basin-specific vehicle fleet emission factors in units of grams per mile, which is the same methodology used by CalEEMod to generate emission factors. See **Appendix A** for more information on modeling inputs.

3.3 Inventory Results

Based on the methodology described in Section 3.2, annual emissions for GHG pollutants (in metric tons per year) were calculated for the construction of the different phases of improvements (near-, intermediate-, and long-term improvements). Operational emissions from the emission sources were estimated for the following scenarios:

- Existing Conditions (2016) – see **Table 2** below
- Future Conditions (2036) No-Project Alternative
- Future Conditions (2036) Proposed Project (Forecasted Growth)
- Future Conditions (2036) Proposed Project (PAL 1)
- Future Conditions (2036) Proposed Project (PAL 2)

3.3.1 Existing Conditions

In order to establish a baseline for existing conditions, emissions were calculated for 2016 utilizing methods outlined in the ACRP Report 11 and discussed in further detail in Section 3.2.2. **Table 2** lists the inventory for the Existing Conditions and shows that the greatest overall emissions contribution comes from aircraft operations.

Table 2 - Existing Conditions (2016) Emissions Inventory

Emission Source	Annual Emissions (tpy)[d]			
	CO_2	CH_4	N_2O	Total CO_{2e}
Aircraft[a]	10,864.59	1.86	0.01	10,930.64
GSE[b]	468.68	0.03	0.01	476.88
Motor Vehicles[c]	N/A	N/A	N/A	N/A
Stationary Sources	245.21	0.01	0.01	249.21
Electrical Consumption	271.19	0.16	0.02	282.24
Total	**11,849.66**	**2.06**	**0.05**	**11,938.98**

Notes:
(a) Includes APU usage
(b) Includes on-airport vehicles
(c) Off-airport motor vehicle emissions were only calculated for net increase in emissions (see Table 8 and 9)
(d) Tons per year, reported in metric tons
Source: AEDT version 2d, C&S Engineers, Inc. analysis 2017

3.3.2 Construction Emissions Inventory

Based on preliminary scheduling provided in the Airport Master Plan, the Proposed Project improvements would be phased over a 20-year period as shown in Figure 1. However, their exact date of construction would be dependent upon the availability of funding and the demand for Airport facilities. This construction analysis was prepared at a programmatic level using all available resources to define the Proposed Project improvements. Defined construction schedules would only be developed once funding is assigned and final engineering is complete.

The estimated annual emissions for were calculated for each individual project construction based on a conceptual phasing schedule over a 20-year period.. The following table illustrates the expected annual emissions by year (assuming the first project starts construction in the near-term) through 2036 (full implementation of the Airport Master Plan).

Table 3 – Total Construction Emissions in Metric Tons per Project

Phase	Project #	CO_2	CH_4	N_2O	Total CO_{2e}
Near -Term	1	23.91	0.01	0.00	24.05
	2	19.62	0.00	0.00	19.67
	3	69.00	0.02	0.00	69.42
	4	1,683.66	0.06	0.00	1,684.89
	5	57.22	0.01	0.00	57.41
	6	31.47	0.01	0.00	31.67
	7	88.08	0.02	0.00	88.47
Intermediate-Term	8	5.56	0.00	0.00	5.58
	9	403.67	0.06	0.00	404.94
	10	N/A	N/A	N/A	N/A
	11	22.50	0.01	0.00	22.63
Long-Term	12	725.32	0.10	0.00	727.50
	13	31.72	0.00	0.00	31.78
	14	390.59	0.06	0.00	391.92
	15	15.60	0.00	0.00	15.70
	16	29.36	0.00	0.00	29.39
Total		**3,597.27**	**0.37**	**0.00**	**3,605.01**

Source: CalEEMod, C&S Engineers, Inc. analysis 2017. Project numbers associated with Figure 1.

3.3.3 Future Conditions (2036) No-Project Alternative

The Airport's physical condition and facilities layout for the Future (2036) No-Project Alternative are anticipated to remain unchanged and therefore consistent with Existing Conditions (2016). However, based on the aviation demand forecasts, air traffic is projected to increase each year due to natural growth of air transportation, with or without the Proposed Project, and the number of associated annual aircraft operations will be higher as compared to Existing Conditions (2016).. Therefore, aircraft emissions in future conditions would be higher as compared to Existing Conditions (2016).

Using forecast information provided by the Airport Master Plan, a scenario was modeled that included the Future Conditions (2036) No-Project Alternative. This includes 180,450 total annual aircraft operations without commercial service operations reflected in PAL 1 and PAL 2. The results of that analysis are presented on **Table 4**.

Table 4 - Future Conditions (2036) No-Project Alternative

Emission Source	Annual Emissions (tpy)[d]			
	CO_2	CH_4	N_2O	Total CO_{2e}
Aircraft[a]	25,906.12	1.94	0.01	25,975.50
GSE[b]	432.07	0.02	0.01	439.63
Motor Vehicles[c]	N/A	N/A	N/A	N/A
Stationary Sources	516.61	0.17	0.02	531.67
Electrical Consumption	271.19	0.16	0.02	282.24
Total	**27,125.99**	**2.29**	**0.06**	**27,229.04**

Notes:

(a) Includes APU usage. Assumes taxi in time of 7 minutes, taxi out time of 19 minutes.

(b) Includes on-airport vehicles

(c) Motor vehicle emissions were not calculated for this scenario. Increases in emissions under the future scenarios that included increases in commercial aircraft operations were calculated based on the net increase when compared to a baseline of no emissions.

(d) Reported in metric tons

Source: AEDT version 2d, C&S Engineers, Inc. analysis 2017

3.3.4 Future Conditions (2036) Proposed Project

As discussed in Section 3.2.2, this study includes analysis of three different forecast scenarios for the future Proposed Project Alternative: Forecasted Growth – 180,450 annual aircraft operations, PAL 1 – 195,050 annual aircraft operations and PAL 2 – 208,004 annual aircraft operations. The emissions associated with each Future Condition (2036) scenario was modeled to determine the anticipated increase.

Under the Forecasted Growth scenario, the number of aircraft operations are forecasted to remain the same as the Future Conditions (2036) No-Project Alternative with the exception

of the potential increase in commercial service operations forecasted under the PAL 1 and PAL 2 scenarios. As such, the Forecasted Growth scenario only includes the forecasted natural growth of aircraft operations at the Airport. The annual number of ground access vehicles in parking lots and on roadways would also be the same when compared to the Future Conditions (2036) No-Project Alternative. The only difference between the Forecasted Growth scenario and the No Project Alternative is that the Forecasted Growth scenario would include the extension and shift of the runway, which will cause a change in aircraft taxi times. The results of the Forecasted Growth analysis are presented on **Table 5**.

Table 5 - Future Conditions (2036) Proposed Project Alternative (Forecasted Growth)

Emission Source	Annual Emissions (tpy)[d]			
	CO_2	CH_4	N_2O	Total CO_{2e}
Aircraft[a]	27,022.10	1.97	0.01	27,092.58
GSE[b]	432.07	0.02	0.01	439.63
Motor Vehicles[c]	N/A	N/A	N/A	N/A
Stationary Sources	516.61	0.17	0.02	531.67
Electrical Consumption	271.19	0.16	0.02	282.24
Total	**28,241.97**	**2.32**	**0.06**	**28,346.12**

Notes:

(a) Includes APU usage. Assumes taxi in time of 7 minutes and 46 seconds, taxi out time of 20 minutes.

(b) Includes on-airport vehicles

(c) Motor vehicle emissions were not calculated for this scenario. Increases in emissions under the future scenarios that included increases in commercial aircraft operations were calculated based on the net increase when compared to a baseline of no emissions.

(d) Reported in metric tons

Source: AEDT version 2d, C&S Engineers, Inc. analysis 2017

Under the PAL 1 scenario, the annual number of aircraft operations are forecasted to increase to 195,050. This increase will be driven solely by the forecasted increase in commercial service operations at the Airport. As noted under the Forecasted Growth scenario, the Proposed Project will also result in an increase in average aircraft taxi times as the runway is lengthened and shifted. Although, the increased runway length will allow some aircraft to travel further distances, as they will no longer require a weight penalty[5], its impact to aircraft emissions is negligible as emissions are not calculated above the mixing height[6]. **Table 6** presents the GHG emissions calculated for PAL 1.

[5] Dependent upon weather conditions and runway length some aircraft are required to reduce their fuel or payload in order to operate.

[6] The atmospheric mixing height used in the AEDT modeling was set at the default value of 3,000 ft. above ground level.

Table 6 - Future Conditions (2036) Proposed Project Alternative (PAL 1)

Emission Source	Annual Emissions (tpy)[d]			
	CO_2	CH_4	N_2O	Total CO_{2e}
Aircraft[a]	36,328.98	1.98	0.03	36,404.33
GSE[b]	543.77	0.03	0.01	553.28
Motor Vehicles[c]	2,547.41	N/A	N/A	2,547.41
Stationary Sources	736.13	0.26	0.04	758.26
Electrical Consumption	417.63	0.24	0.03	434.65
Total	**40,573.92**	**2.51**	**0.11**	**40,697.93**

Notes:

(a) Includes APU usage. Assumes taxi in time of 7 minutes and 46 seconds, taxi out time of 20 minutes.

(b) Includes on-airport vehicles

(c) Motor vehicle emissions were not calculated for this scenario. Increases in emissions under the future scenarios that included increases in commercial aircraft operations were calculated based on the net increase when compared to a baseline of no emissions.

(d) Reported in metric tons

Source: AEDT version 2d, C&S Engineers, Inc. analysis 2017

Under the PAL 2 scenario, the annual number of aircraft operations are forecasted to increase to 208,004. This increase will be driven solely by the forecasted increase in commercial service operations at the Airport. As noted under the Forecasted Growth scenario, the Proposed Project will also result in an increase in average aircraft taxi times as the runway is lengthened and shifted. **Table 7** presents the GHG emissions calculated for PAL 2.

Table 7 - Future Conditions (2036) Proposed Project Alternative (PAL 2)

Emission Source	Annual Emissions (tpy)[d]			
	CO_2	CH_4	N_2O	Total CO_{2e}
Aircraft[a]	44,581.73	2.00	0.04	44,661.38
GSE[b]	654.48	0.04	0.02	665.99
Motor Vehicles[c]	4,804.67	N/A	N/A	4,804.67
Stationary Sources	754.99	0.26	0.04	777.46
Electrical Consumption	417.63	0.24	0.03	434.65
Total	**51,213.50**	**2.54**	**0.13**	**51,344.15**

Notes:

(a) Includes APU usage. Assumes taxi in time of 7 minutes and 46 seconds, taxi out time of 20 minutes.

(b) Includes on-airport vehicles

(c) Motor vehicle emissions were not calculated for this scenario. Increases in emissions under the future scenarios that included increases in commercial aircraft operations were calculated based on the net increase when compared to a baseline of no emissions.

(d) Reported in metric tons

Source: AEDT version 2d, C&S Engineers, Inc. analysis 2017

To quantify the potential increase in GHG emissions generated from the full-build out of the Proposed Project **Tables 8** present the calculated emissions increase for the Future Conditions (2036) Proposed Project Alternative scenarios when compared to the Future Conditions (2036) No-Project Alternative. This includes and evaluation of both scenarios PAL 1 and PAL 2.

Table 5 – Total GHG Emissions Increase for Operational Activities

Scenario	Annual Emissions (tpy)[d]			
	CO_2	CH_4	N_2O	Total CO_{2e}
Future Conditions (2036) No Project vs. With-Project (Forecasted Growth)[a]	1,115.98	0.03	0.00	1,117.08
Future Conditions (2036) No Project vs. With-Project (PAL 1)	13,447.93	0.22	0.05	13,468.89
Future Conditions (2036) No Project vs. With-Project (PAL 2)	24,087.51	0.25	0.07	24,115.11

Notes:

(a) As discussed in Section 3.3.4, this 2036 scenario compares the difference of natural growth without airport improvements (i.e., runway shift and extension) versus natural growth with airport improvements.

Source: AEDT version 2d, CalEEMod, C&S Engineers, Inc. and Helix Environment Planning, Inc. analysis 2017

3.4 Significance Criteria

In accordance with applicable CEQA Appendix G thresholds, in order to determine the potential significance of the Proposed Project's impact on climate change, two factors will be evaluated to meet the requirements and recommendations as discussed under the Regulatory Setting:

1. Quantification of the GHG emissions generated as a result of the Proposed Project Alternatives over baseline conditions. This effort will be divided by emission sources previously identified.
2. Comparison of the Proposed Project Alternatives with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHG pollutants to confirm there are no conflicts.

3.5 Greenhouse Gas Emissions

3.5.1 Aircraft

In accordance with the 2016 CEQ guidance, the GHG emissions associated with aircraft operations were quantified to help determine the Proposed Projects overall potential impact to climate change. Although the guidance does not establish a threshold in which a determination can be made that a project will create a significant impact it does clarify that a project's emissions should be quantified and identify measures to avoid, minimize, or mitigate adverse effects, if necessary.

Emissions associated with aircraft are quantified in **Tables 2, 4, 5, 6** and **7**. As shown, there is an increase in GHG emissions between the Future Conditions (2036) No-Project Alternative and the Future Conditions (2036) Proposed Project Alternative scenarios. Although, the Proposed Project does not increase the capacity of the airfield the growth in commercial service operations forecasted under scenarios PAL 1 and PAL 2 generated an increase in GHG emissions. Increased aircraft taxi-times associated with the reconfigured taxiway system also generated an increase in GHG emissions.

The County, as the owner of the Airport, currently accepts federal grant funding from the FAA's Airport Improvement Program. They are therefore required to comply with a list of Airport Sponsor Assurances provided by the FAA. FAA Order 5190.6B *FAA Airport Compliance Manual*, Grant Assurance 22a states that the County:

> "Will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport."

Therefore, the County has no authority over the quantity, type, or flight track of an aircraft arriving or departing from this public use airport, because aircraft in flight are under the jurisdiction of the FAA. Because the County has no authority to regulate aircraft or their emissions at the Airport, there is no directly applicable methodology or threshold with which to evaluate their significance, and no enforceable mitigation for aircraft emissions.

In addition, the AB 32 Climate Change Scoping Plan states, "the State does not have regulatory authority over aviation" and "ARB has not identified aviation specific measures." Improvements in aircraft design and technology and future growth or decline in passengers would occur independently of whether or not the Proposed Project is implemented.

3.5.2 Motor Vehicles

The majority of motor vehicle emissions are related to a Scope 3 emission source (vehicles owned and operated by the traveling public), which is not under County control or oversight.

Scope 1 emissions include only vehicles owned and operated by the County for on-airport operations and maintenance purposes. Emissions associated with the projected increase in on-road vehicle traffic to and from the Airport were accounted for throughout the region and air basin under the RTP, which inventoried transportation and other sources of GHG emissions and outlined a strategy to meet required GHG emission reduction targets. As part of the RTP/SCS, an inventory of future GHG emissions were calculated and used as the basis to help determine emission reduction strategies. Emissions calculations related to vehicular traffic patterns at airports located in the County were derived from the AMAP and the RASP, prepared by the SDCRAA. Specific to the Airport, the AMAP selected Scenario 1C of the RASP to determine the future increase in vehicular traffic coming to and from the Airport. Scenario 1C included 641,355 forecasted passenger enplanements at the Airport by the year 2030. The Master Plan's high range forecast for commercial enplanements is 575,000 in 2036. The RASP's projection is more than 10 percent above the County's forecast, and was the basis of emissions calculations in the region.

3.5.3 Stationary Sources

The change in stationary source emissions is primarily related to the increase in building square footage associated with the Proposed Project. According to the GHG emissions modeling, the increase in the buildings footprint will generate an additional 226.59 MT CO_{2e} under the Future Conditions (2036) Proposed Project PAL 1 scenario and 245.79 MT CO2e under PAL 2, when compared to the Future Conditions (2036) No-Project Alternative. This increase does not account for the County's commitment to construct new buildings or renovations that comply with California building standards aimed at efficiency and minimizing GHG emissions.

3.5.4 Electrical Consumption

Similar to stationary sources, the change in electrical consumption emissions is primarily related to the estimated increase in building square footage associated with the Proposed Project. The modeled increase (111.39 MT CO_{2e}) did not take into account that new building areas/renovations will comply with California building standards aimed at efficiency and minimizing GHG emissions, and that would provide additional efficiencies. Further, state regulations required that utilities source 20 percent of their energy from renewables by 2010 and achieve 33 percent by 2020 and 50 percent by 2030. These shifts will support the reduction in GHG emissions across the state.

3.5.5 Construction

As noted in Section 2.4.1, the CAPCOA 900 MT CO_{2e} threshold for determining GHG significance would not be applicable to analyze the overall Master Plan build-out, tentatively scheduled to be completed in 2036. Construction emissions associated with individual projects outlined in Figure 1 are quantified and compared to the efficiency metric threshold

(or resultant threshold for years beyond 2020 when accounting for the downward projection necessary to meet future GHG targets).

As shown in **Table 3**, Project 4 (Construction of EMAS System on Runway 6) is anticipated to result in Total CO_{2e} above 900 MT. The Efficiency Metric is therefore applied to determine its significance. In order to determine the Service Population (SP [residents + employees]) for these calculations, the regional growth forecasts for the San Diego Region prepared by SANDAG[7] were reviewed. Specifically, the SANDAG published *2050 Regional Growth Forecast Process and Model Documentation* was to determine the SP. See below for the resultant comparison to the Efficiency Metric (adjusted downward):

Emissions Generated by Project 4 (2020): 1,684.885 MT CO_{2e}

Divided by SP (3,535,000 + 1,619,615 = 5,154,615): 0.000326869

Comparison to Efficiency Metric of 2.2 MT CO_{2e}/SP/year: **Below**

Because of the requirement to account for future emission reduction targets beyond 2020, projects scheduled to occur between 2021 and 2036 that neared the 900 MT CO_{2e} threshold were also evaluated and compared to the Efficiency Metric. Project 12 (Relocation/Extension of Runway 6-24) was therefore evaluated because it represents the highest increase in CO_{2e} from 2021-2036. Although Project 12 could potentially be implemented in the intermediate-term (conceptually 2028 or 2029), it was assumed to occur as late as 2036 to be reflective of the region's additional growth and downward emission reduction target. See below for the resultant comparison to the Efficiency Metric (adjusted downward):

Emissions Generated (assumed to take place in 2036): 727.4984 MT CO_{2e}

Divided by SP (3,853,698 + 1,769,938 = 5,623,636): 0.000129364

Comparison to Efficiency Metric of 2.2 MT CO_{2e}/SP/year: **Below**

3.6 Consistency with Applicable GHG Reduction Plans

As discussed in Section 3.4.2, emissions associated with the increase in vehicle traffic to and from the Airport, including potential increase in commercial air service at the airport were regionally accounted for under the EIR prepared in support of the RTP/SCS and would not conflict with those plans. In addition, the quantification of Master Plan GHG emissions shows that the Proposed Project would not conflict with CARB's Scoping Plan or other state- and locally- developed plans to meet state emission reduction targets.

[7] http://www.sandag.org/index.asp?classid=26&fuseaction=home.classhome

Section 4—Summary of Recommended Project Design Features, Impacts & Mitigation

Any new or renovated facilities will comply with the applicable California Building Efficiency Standards (Title 24), which include energy and water efficiency as well as indoor air quality requirements for constructed buildings and additions or alterations to existing facilities. The Standards apply to both residential and nonresidential buildings and help address climate change by reducing GHG emissions through increased efficiency.

In addition, CARB's ACC Program sets standards for cars with model years 2017 through 2025. The standards combine control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles. These standards call for the following by 2025: new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions; environmentally superior cars will be available across the range of models, from compacts, to SUVs, pickups and minivans; and consumer savings on fuel costs will average $6,000 over the life of the car. The fuel cost savings will more than offset the average $1,900 increase in vehicle price for the ultra-clean, high-efficiency technology. Such standards will further support emission reductions associated with vehicle traffic.

As noted in Section 3.4 of the Airport Master Plan, North San Diego County is the core of the Airport service area. While passenger growth is anticipated to increase at the Airport over the 20-year planning period, the GHG emissions modeling completed as part of this Technical Report did not account for the anticipated decrease in VMT associated with passenger vehicles that would no longer travel to further airport destinations (e.g. San Diego International Airport and Los Angeles International Airport), thus potentially reducing GHG emissions associated with on-road vehicles.

Although the County has no authority over aircraft emissions they were quantified as recommended in the 2016 CEQ guidance. Although in-flight measures to reduce GHG emissions cannot be mandated, other measures may be considered for the reduction of aircraft-related emissions while aircraft are parked on the apron including providing electric powered Ground Power Units to reduce the usage of APUs. This is already a common practice by the Fixed-Based-Operators located at the Airport. The County may also promote the usage of electric powered Ground Support Equipment (eGSE) for future commercial aircraft operations. These potential measures may be considered on an individual project basis; however, they are not required as mitigation since this Technical Report confirms that implementation of the Airport Master Plan would not result in impacts or exceed applicable standards. In addition, improvements in aircraft design and technology and future growth or decline in annual passengers would occur independently of whether or not the Proposed Project is implemented.

Construction projects will comply with all air quality requirements (refer to the Air Quality Technical Report) that will contribute to the reduction of GHG pollutants. Additional measures may be incorporated into the design and construction of projects such as LED airfield lighting and signage to increase energy efficiency. Material reuse to reduce truck hauling and processing of virgin materials, and enforcement of anti-idling policies should also be considered in the design and construction of individual projects.

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Section 6—List of Preparers and Persons and Organizations Contacted

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Organizations Contacted
San Diego County Air Pollution Control District (SDAPCD)
Federal Aviation Administration (FAA) – AEDT Helpdesk

Appendix A – CalEEMod Results and Assumptions

Prepared by C&S Engineers, Inc. 2017

Appendix A: CRQ MP EIR Construction Emissions Inventory Remarks

Project Characteristics Remarks:

This study involves the projects proposed as part of the preferred alternative in the Master Plan. Each of the sixteen projects was assigned a phase number and the projects were grouped into three time frames; the time frames were labeled as near-term, intermediate-term, and long-term. The near-term projects have an operational year of 2023 and are as follows:

- Phase 1: Relocation of the glideslope building
- Phase 2: Relocation of the segmented circle and windsock equipment
- Phase 3: Relocation of ARFF facility
- Phase 4: Construction of EMAS system on Runway End 06
- Phase 5: Relocation of the vehicle service road
- Phase 6: Relocation of lighting vault
- Phase 7: 200' extension of existing Runway 06-24 and Taxiway A

The intermediate-term projects have an operational year of 2030 and are as follows:

- Phase 8: Removal of fuel tank on north apron
- Phase 9: Removal of the north apron and Taxiway N
- Phase 10: Area reserved for future GA parking – NO ACTION REQUIRED
- Phase 11: Near-term auto parking improvements

The long-term projects have an operational year of 2035 and are as follows:

- Phase 12: Relocation/extension of Runway 06-24
- Phase 13: Removal/reconstruction of existing connector taxiways
- Phase 14: Removal/reconstruction of existing Taxiway A
- Phase 15: Construction of EMAS system on Runway 24
- Phase 16: relocation of EMAS System on Runway 06

Land Use Remarks:

- Phase 1: Industrial park building, 360 SF steel glideslope building relocation
- Phase 2: Parking (other asphalt surfaces): 6,900 SF pavement demolition for the relocation of segmented circle and windsock
- Phase 3: Industrial park building, 4,700 SF ARFF building relocation
- Phase 4: Parking (other non-asphalt), 52,500 SF for the construction of a 350'x150' EMAS.
- Phase 5: Parking (other asphalt surfaces), 6,000 SY (which equals 54,000 SF) for vehicle service road relocation
- Phase 6: Industrial park building, 100 SF concrete lighting vault relocation.
- Phase 7: Parking (other asphalt surfaces), 3000 CY (assumed 1 yard depth, which equals 3000 SY or 27,000 sf) for 200' runway extension
- Phase 8: Industrial park. Measured tank dimensions off of google earth – 10' x 40' = 400 SF.
- Phase 9: Parking (other asphalt surfaces): 43,000 SY = 8.8 acres
- Phase 11: Parking (Parking lot): 800 SY = 7.2 1000sf
- Phase 12: Parking (other asphalt surfaces): 82,000 SY = 738 1000SF
- Phase 13: Parking (other asphalt surfaces): used larger area (1800 SY = 16.2 1000 sf)
- Phase 14: Parking (other asphalt surfaces): used larger area (39,000 SY = 351 1000 sf)
- Phase 15: Parking (other non-asphalt): 5,900 SY = 53 1000SF

- Phase 16: Parking (other non-asphalt): 5,900 SY = 53 1000SF

Construction Phase Remarks:

- In general, construction durations, start dates, and project quantities taken from *CRQ Master Plan Duration of Construction Projects*.
- Phase 2: 16 days for demolition based on 420 SY of pavement removal per shift.
- Phase 3: Schedule based on 8 months estimate of construction. Subtracted the time needed for mobilization (10 days), concrete pour/curing (28 days), and architectural coatings (assumed one month). The remaining time was allotted towards building construction.
- Phase 4: Timing based on 10 months of construction duration. I assumed the majority of the work would take place with the site prep/grading due to the large amount of earthwork. I assumed 6 months for earth work, 1 month for grading, 1 month for building construction. Building construction includes the retaining wall and EMAS block construction.
- Phase 5: 2 weeks for mobilization; 3 weeks for demolition based on 420 SY pavement removal per shift, 5 days pavement installation based on 2000 CY asphalt/concrete pavement production
- Phase 6: Assumed 1 month for concrete curing at the end. 1 month to construct the facility, 4 weeks to install electrical, 10 days to prepare the new site.
- Phase 7: 2 days pavement installation based on 2000 CY asphalt/concrete pavement production per shift. Duration indicates 4 months construction – allocated 2 months to site prep for column work, 1 month for grading/RSA adjustments, and 2 weeks for mobilization/staking.
- Phase 8: Assumed 2 weeks for demolition/removal, 2 weeks for contact with EPA.
- Phase 9: 15 weeks of pavement removal, 2 weeks for mobilization/staking.
- Phase 11: 2 months total; assumed 1 week for site preparation and grading since the area is previously paved. The rest was assumed to be paving.
- Phase 12: Schedule based on 420 SY of pavement removal per shift, with two crews.
    - 39 weeks of demolition
    - 16 shifts of pavement construction
- Phase 13: Total duration of construction: 8 weeks. Subtract 2 weeks for mobilization. Assume 10 days demo, one week site prep, two weeks days grading, 2 days paving.
    - Pavement demo: 4000 SY / 420 SY per day = 9.5 days
    - Pavement installation: 1800 CY / 2000 CY production per shift = 1 day for paving
- Phase 14: Total duration of construction: 5 months.
    - CalEEMod default durations for site prep and grading were used and assumed to overlap with the other phases.
    - Pavement demo: 39,000 SY / 420 SY per day = 93 days
    - Pavement installation: 15000 CY / 2000 CY production per shift = 7.5 days for paving
- Phase 15: Total duration of construction: 6 weeks
    - 2 weeks for mobilization/staking
    - 2 days site prep (CalEEMod default)
    - 4 days grading (CalEEMod default)
    - 3 days for paving based on 2000 CY of pavement per day
    - Remainder of time (12 days) for placement of EMAS block
- Phase 16: Total duration of construction: 2 months
    - 2 weeks for mobilization/staking
    - 2 days site prep (CalEEMod default)
    - 4 days grading (CalEEMod default)
    - 3 days for paving based on 2000 CY of pavement per day
    - Remainder of time (27 days) for placement of EMAS block

Off-Road Equipment:

- Phase 4: Added one forklift under building construction for EMAS block placement
- Phase 7: Extend Runway and Taxiway: Added bore/drill rig for displacement columns. Assumed 2 rigs working 8 hours a day
- Phase 9: Demolition of Taxiway: 6 crews needed. Changed equipment breakdowns to the following:
    - Concrete/Industrial Saws – unit amount: 6
    - Excavators – unit amount: 18
    - Rubber tired dozers – unit amount: 12
- Phase 15: EMAS
    - Pavement underneath blocks - used default equipment.
    - Placement of EMAS block - assumed 2 crews with one forklift each. Each forklift assumed to run 8 hours.
- Phase 15: EMAS
    - Pavement underneath blocks - used default equipment.
    - Placement of EMAS block - assumed 1 crew with one forklift. Each forklift assumed to run 8 hours.

Dust from Material Movement:

- Import/Export quantities taken from CRQ Master Plan Duration of Construction Projects
- Phase 4 – 190,000 CY earthwork
- Phase 7 – 66,000 SF x 1 ft diameter columns = 66,000 CF = 2,444 CY + 3,000 CY pavement

Demolition:

- Phase 2: Assumed asphalt density of 2.1 CY/ton. Demolition weight:
    - 6900 SF x 1.5 ft = 1150 CY x 2.1 tons/CY = 2415 tons
- Phase 5: Assumed asphalt density of 2.1 CY/ton. Demolition weight:
    - 6000 SY * 0.5 yard x 2.1 tons/CY = 6300 tons
- Phase 8: 22,300 lb = 11.15 tons. Based weight on 120" diameter tank x 42'-6" length in table here: http://www.engineeringtoolbox.com/fuel-oil-storage-tanks-dimensions-d_1585.html
- Phase 9: Assumed asphalt density of 2.1 CY/ton. Demolition weight:
    - 43000 SY * 0.67 yard x 2.1 tons/CY = 60,501 tons
- Phase 12: Assumed asphalt density of 2.1 CY/ton. Demolition weight:
    - 82000 SY * 0.67 yard x 2.1 tons/CY = 115,374 tons
- Phase 13: Assumed asphalt density of 2.1 CY/ton. Demolition weight:
    - 4000 SY * 0.67 yard x 2.1 tons/CY = 5,628 tons
- Phase 14: Assumed asphalt density of 2.1 CY/ton. Demolition weight:
    - 39000 SY * 0.67 yard x 2.1 tons/CY = 54,873 tons

Appendix B – Operational Emissions Results

Prepared by C&S Engineers, Inc. 2017 and HELIX Environmental Planning, Inc. 2017

BASELINE AIRCRAFT GREENHOUSE GAS POLLUTANT EMISSIONS

Aircraft Make/Model	AEDT Aircraft ID	LTO Cycles	Sum of Fuel (g)[1]	Fuel (Gal)	Sum of CO2 (g)[1]	Sum of CH_4[2] (lb)	Sum of N_2O[2] (lb)	Annual CO2 (MT)	Annual CH4 (MT)	Annual N2O (MT)	Annual CO2e (MT)[3]
Beechcraft Bonanza	Raytheon Beech Bonanza 36*	2,623	30,642.25	11.26	96,676.30	0.17	0.00	253.58	0.21	0.00	260.64
Beechcraft Baron	Raytheon Beech Baron 58*	9,162	24,735.81	9.09	78,041.46	0.14	0.00	715.02	0.59	0.00	734.93
Bombardier Challenger 600	Bombardier Challenger 600	877	224,208.25	72.27	707,377.01	-	0.05	620.37	-	0.00	620.38
Cessna 172	Cessna 172 Skyhawk*	25,187	7,370.87	2.71	23,255.11	0.04	0.00	585.73	0.48	0.00	602.04
Cessna 182	Cessna 182*	1,661	11,093.45	4.08	34,999.81	0.06	0.00	58.13	0.05	0.00	59.75
Cessna 206	Cessna 206*	1,133	15,443.05	5.67	48,722.81	0.09	0.00	55.20	0.05	0.00	56.74
Cessna 208 Caravan	Cessna 208 Caravan	2,016	39,806.04	12.83	125,588.04	-	0.01	253.19	-	0.00	253.19
Cessna Conquest II	Cessna 441 Conquest II	474	88,544.38	28.54	279,357.53	-	0.02	132.42	-	0.00	132.42
Cessna Citation II	Cessna 500 Citation I	1,870	141,602.08	45.64	446,754.56	-	0.03	835.43	-	0.00	835.45
Cessna Citation Bravo	Cessna 550 Citation II	253	157,586.02	50.79	497,183.89	-	0.03	125.79	-	0.00	125.79
Cessna Citation Ultra	Cessna 560 Citation V	770	151,392.14	48.80	477,642.19	-	0.03	367.78	-	0.00	367.79
Cessna Citation Sovereign	Cessna 680 Citation Sovereign	434	264,968.98	85.40	835,977.12	-	0.06	362.81	-	0.00	362.82
Cessna Citation X	Cessna 750 Citation X	597	272,457.94	87.82	859,604.77	-	0.06	513.18	-	0.00	513.19
Dornier 328 Jet	Dornier 328-100 Series	3	170,595.47	54.99	538,228.70	-	0.04	1.61	-	0.00	1.61
Eurocopter 135	Eurocopter EC-130	7,684	64,519.48	20.80	203,558.97	-	0.01	1,564.15	-	0.00	1,564.18
Eclipse 500	Eclipse 500 / PW610F	819	28,063.94	9.05	88,541.75	-	0.01	72.52	-	0.00	72.52
Embraer 120	Embraer EMB120 Brasilia	35	136,750.63	44.08	431,448.25	-	0.03	15.10	-	0.00	15.10
Embraer 145	Embraer ERJ145	104	354,056.53	114.12	1,117,048.37	-	0.08	116.17	-	0.00	116.18
Dassault Falcon 2000	Dassault Falcon 20-C	186	260,387.44	83.93	821,522.37	-	0.06	152.80	-	0.00	152.81
Gulfstream GV/650	Bombardier Global Express	523	610,581.40	196.80	1,926,384.33	-	0.13	1,007.50	-	0.00	1,007.52
Gulfstream GII	Gulfstream II	195	686,534.44	221.28	2,166,016.16	-	0.15	422.37	-	0.00	422.38
Gulfstream GIV	Gulfstream G350	479	498,224.13	160.58	1,571,897.14	-	0.11	752.94	-	0.00	752.95
Dash 6	BAE Jetstream 31	1,333	74,564.57	24.03	235,251.22	-	0.02	313.59	-	0.00	313.60
Piaggio P.180 Avanti	Piaggio P.180 Avanti	74	92,883.76	29.94	293,048.28	-	0.02	21.69	-	0.00	21.69
GASEVP	Piper PA-24 Comanche*	7,868	10,263.98	3.77	32,382.88	0.06	0.00	254.79	0.21	0.00	261.88
Piper Warrior	Piper PA-28 Cherokee Series*	4,989	8,664.31	3.18	27,335.89	0.05	0.00	136.38	0.11	0.00	140.18
Piper Meridian	Piper PA46-TP Meridian	365	50,545.78	16.29	159,471.92	-	0.01	58.21	-	0.00	58.21
Robinson R22	Robinson R22B*	381	11,710.62	4.30	36,947.01	-	0.00	14.08	-	0.00	14.08
Robinson R44	Robinson R44 Raven / Lycoming O-540-F1B5*	1,524	34,712.19	12.75	109,516.96	0.20	0.00	166.90	0.14	0.00	171.55
Sikorsky SH-60 Seahawk	Sikorsky SH-60 Sea Hawk	431	54,886.06	17.69	173,165.53	-	0.01	74.63	-	0.00	74.64
Learjet 36	Rockwell Sabreliner 65	1,022	166,502.12	53.67	525,314.20	-	0.04	536.87	-	0.00	536.88
Cirrus SR22	EADS Socata TB-9 Tampico*	1,444	8,664.31	3.18	27,335.89	0.05	0.00	39.47	0.03	0.00	40.57
								10,600.41	**1.85**	**0.00**	**10,663.66**

*Calculated based on AVGAS fuel; all other values based on Jet A

1. Emissions calculated by AEDT
2. Emission factors taken FAA Air Quality Handbook
3. GWP taken from FAA Air Quality Handbook

BASELINE APU GHG POLLUTANT EMISSIONS

AEDT ID #	Equipment Type	Fuel Usage (lbs/hr)	Operating Time (Hours)	Annual Operations	Fuel Usage (gals)	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
2	APU GTCP 36-100	146	0.216666667	877	4,055.91	38.8146	0.0011	0.0013	39.2263
3	APU GTCP 36-150[]	149	0.216666667	61	287.91	2.7552	0.0001	0.0001	2.7845
4	APU GTCP 36-100	146	0.216666667	195	899.52	8.6083	0.0002	0.0003	8.6996
5	APU GTCP 36-100	146	0.216666667	422	1,951.65	18.6771	0.0005	0.0006	18.8751
6	APU GTCP 36 (80HP)	221	0.216666667	523	3,657.75	35.0043	0.0010	0.0011	35.3756
7	APU GTCP 36-150[]	149	0.216666667	3	14.16	0.1355	0.0000	0.0000	0.1369
8	APU GTCP 36-150[]	149	0.216666667	622	2,935.71	28.0944	0.0008	0.0009	28.3924
9	APU GTCP 36-100	146	0.216666667	877	4,055.91	38.8146	0.0011	0.0013	39.2263
10	APU GTCP 36-150[]	149	0.216666667	61	287.91	2.7552	0.0001	0.0001	2.7845
11	APU GTCP 36-100	146	0.216666667	195	899.52	8.6083	0.0002	0.0003	8.6996
12	APU GTCP 36-100	146	0.216666667	422	1,951.65	18.6771	0.0005	0.0006	18.8751
13	APU GTCP 36 (80HP)	221	0.216666667	523	3,657.75	35.0043	0.0010	0.0011	35.3756
14	APU GTCP 36-150[]	149	0.216666667	3	14.16	0.1355	0.0000	0.0000	0.1369
15	APU GTCP 36-150[]	149	0.216666667	622	2,935.71	28.0944	0.0008	0.0009	28.3924
					TOTAL	**264.1789**	**0.0075**	**0.0086**	**266.9807**

BASELINE STATIONARY GHG EMISSIONS

Operation ID	Equipment Type	Source	Usage	Units	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
58	Boiler/Space Heater - Type 86	Natural Gas	410.00	1000 CF	22.39	0.00	0.00	22.40
58	Boiler/Space Heater - Type 86	Electricity	1,051,460.97	kWh	271.1851	0.1579	0.0191	282.2376

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
6	Diesel - (None specified. EPA default data used.) - Generator	3,260.00	158	0.82	166.4684	21,832.155	221.597	0.013	0.006	225.567
26	Diesel - (None specified. EPA default data used.) - Generator	18.00	158	0.82	166.4684	120.546	1.224	0.000	0.000	1.245
SUBTOTAL, GENERATORS							222.821	0.013	0.006	226.812
TOTAL, GENERATORS AND BOILER							**516.39**	**0.17**	**0.02**	**531.45**

BASELINE NONAIRCRAFT EMISSIONS

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
1	Diesel - Hi-Way F650 - Cabin Service Truck	523.80	210	0.53	166.468	3,013.483	30.587	0.002	0.001	31.135
2	Gasoline - Taylor Dunn - Cart	500.00	25	0.5	185.066	411.291	3.665	0.000	0.000	3.729
3	"LPG - Toyota 5000 lb - Fork Lift"	976.00	54	0.3	185.066	1,521.456	8.743	0.000	0.000	8.744
5	Diesel - F350 - Fuel Truck	8,705.00	235	0.25	166.468	26,435.329	268.320	0.015	0.007	273.126
7	"Diesel - TLD 28 VDC - Ground Power Unit"	216.00	71	0.75	185.066	660.961	6.709	0.000	0.000	6.829
8	Diesel - F250 / F350 - Service Truck	726.18	235	0.2	166.468	1,764.210	17.907	0.001	0.000	18.228
9	Gasoline - F250 / F350 - Service Truck	3,355.08	260	0.2	166.468	10,327.161	92.014	0.005	0.002	93.628
10	Diesel - Tennant - Sweeper	12.00	53	0.51	185.066	18.639	0.189	0.000	0.000	0.193
11	"Diesel - F750 Dukes Transportation Services DART 3000 to 6000 gallon - Fuel Truck"	74.43	175	0.25	166.468	168.319	1.708	0.000	0.000	1.739
37	"Diesel - F750 Dukes Transportation Services DART 3000 to 6000 gallon - Fuel Truck"	1,692.00	175	0.25	166.468	3,826.366	38.838	0.002	0.001	39.533
						TOTAL	**468.679**	**0.026**	**0.012**	**476.883**

NOTES:
GSE fuel flow rates taken from nonroad tables within AEDT database.
Emission factors for CH4, N2O and CO2 taken from FAA AQ handbook, Appendix C, page 68.

PAL1 WITH PROJECT AIRCRAFT GREENHOUSE GAS POLLUTANT EMISSIONS

Aircraft Make/Model	AEDT Aircraft ID/Substitution	LTO Cycles	Sum of Fuel (g)	Fuel (Gal)	Sum of CO2 (g)	Sum of $CH4^2$ (lb)	Sum of $N2O^2$ (lb)	Annual CO2 (MT)	Annual CH4 (MT)	Annual N2O (MT)	Annual $CO2e (MT)^3$
Beechcraft Bonanza	Raytheon Beech Bonanza 36*	2,613	30,975.43	11.38	97,727.46	0.18	0.00	255.36	0.21	0.00	262.47
Beechcraft Baron	Raytheon Beech Baron 58*	7,306	25,404.75	9.33	80,151.99	0.14	0.00	585.59	0.48	0.00	601.90
Bombardier Challenger 600	Bombardier Challenger 600	1,183	234,305.14	75.52	739,232.72	-	0.05	874.51	-	0.00	874.53
Cessna 172	Cessna 172 Skyhawk*	25,098	8,754.04	3.22	27,618.99	0.05	0.00	693.18	0.57	0.00	712.49
Cessna 182	Cessna 182*	1,655	11,201.40	4.12	35,340.42	0.06	0.00	58.49	0.05	0.00	60.12
Cessna 206	Cessna 206*	1,129	15,778.01	5.80	49,779.61	0.09	0.00	56.20	0.05	0.00	57.77
Cessna 208 Caravan	Cessna 208 Caravan	4,166	40,761.87	13.14	128,603.72	-	0.01	535.76	-	0.00	535.77
Cessna Citation CJ4	Cessna 525 CitationJet	3,558	1,195,530.61	385.33	3,771,899.09	-	0.26	13,420.42	-	0.00	13,420.70
Cessna Citation Bravo	Cessna 550 Citation II	341	163,107.57	52.57	514,604.39	-	0.04	175.48	-	0.00	175.48
Cessna Citation Sovereign	Cessna 680 Citation Sovereign	585	274,448.91	88.46	865,886.29	-	0.06	506.54	-	0.00	506.55
Cessna Citation X	Cessna 750 Citation X	805	280,416.33	90.38	884,713.51	-	0.06	712.19	-	0.00	712.21
Bombardier 700	Bombardier CRJ-700	3,103	466,361.27	150.31	1,471,369.83	-	0.10	4,565.66	-	0.00	4,565.76
Bombardier de Havilland Dash 8 Q200	Bombardier de Havilland Dash 8 Q200	1,095	149,092.09	48.05	470,385.54	-	0.03	515.07	-	0.00	515.08
Dornier 328 Jet	Dornier 328-100 Series	4	178,114.32	57.41	561,950.70	-	0.04	2.25	-	0.00	2.25
Eurocopter EC135	Eurocopter EC-130	14,254	64,519.48	20.80	203,558.97	-	0.01	2,901.53	-	0.00	2,901.59
Eclipse 500	Eclipse 500 / PW610F	1,105	28,059.53	9.04	88,527.81	-	0.01	97.82	-	0.00	97.83
Embraer 120	Embraer EMB120 Brasilia	81	142,589.38	45.96	449,869.47	-	0.03	36.44	-	0.00	36.44
Embraer 145	Embraer ERJ145	140	356,428.49	114.88	1,124,531.90	-	0.08	157.43	-	0.00	157.44
Embraer E-170	Embraer ERJ170	3,103	386,522.34	124.58	1,219,477.98	-	0.09	3,784.04	-	0.00	3,784.12
Dassault Falcon 2000	Dassault Falcon 20-C	250	265,828.85	85.68	838,690.01	-	0.06	209.67	-	0.00	209.68
Gulfstream GV/650	Gulfstream GV/650	705	630,933.72	203.36	1,990,595.88	-	0.14	1,403.37	-	0.00	1,403.40
Gulfstream G450	Gulfstream G350	908	521,512.33	168.09	1,645,371.40	-	0.11	1,494.00	-	0.00	1,494.03
Dash 6	BAE Jetstream 31	3,677	76,838.94	24.77	242,426.87	-	0.02	891.40	-	0.00	891.42
Learjet 70	Bombardier Learjet 70	1,378	138,494.33	44.64	436,949.61	-	0.03	602.12	-	0.00	602.13
Piaggio P.180 Avanti	Piaggio P.180 Avanti	173	95,796.12	30.88	302,236.77	-	0.02	52.29	-	0.00	52.29
GASEVP	Piper PA-24 Comanche*	7,840	10,598.71	3.89	33,438.93	0.06	0.00	262.16	0.21	0.00	269.46
Piper Warrior	Piper PA-28 Cherokee Series*	4,972	8,769.03	3.22	27,666.28	0.05	0.00	137.56	0.11	0.00	141.39
Piper Meridian	Piper PA46-TP Meridian	854	52,138.51	16.80	164,497.02	-	0.01	140.48	-	0.00	140.48
Robinson R22	Robinson R22B*	707	11,710.62	4.30	36,947.01	-	0.00	26.12	-	0.00	26.12
Robinson R44	Robinson R44 Raven / Lycoming O-540-F1B5*	2,826	34,712.19	12.75	109,516.96	0.20	0.00	309.49	0.25	0.00	318.11
Sikorsky SH-60 Seahawk	Sikorsky SH-60 Sea Hawk	478	54,886.06	17.69	173,165.53	-	0.01	82.77	-	0.00	82.77
Cirrus SR22	EADS Socata TB-9 Tampico*	1,439	8,769.03	3.22	27,666.28	0.05	0.00	39.81	0.03	0.00	40.92
							TOTAL	**35,585.23**	**1.96**	**0.00**	**35,652.69**

*Calculated based on AVGAS fuel; all other values based on Jet A

1. Emissions calculated by AEDT
2. Emission factors taken FAA Air Quality Handbook
3. GWP taken from FAA Air Quality Handbook

PAL1 APU GREENHOUSE GAS POLLUTANT EMISSIONS

AEDT ID #	Equipment Type	Fuel Usage (lb/hr)	Operating Time (Hours)	Annual Operations	Fuel Usage (gals)	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
32	APU GTCP 85 (200 HP)	235	0.216666667	3,103	23,098.60	221.0512	0.0062	0.0072	223.3956
34	APU GTCP 36-100	146	0.216666667	1,183	5,471.09	52.3577	0.0015	0.0017	52.9130
35	APU GTCP 36-150[]	149	0.216666667	140	660.77	6.3235	0.0002	0.0002	6.3906
36	APU GTCP 36-100	146	0.216666667	908	4,199.28	40.1867	0.0011	0.0013	40.6129
37	APU GTCP 36 (80HP)	221	0.216666667	705	4,935.34	47.2307	0.0013	0.0015	47.7316
38	APU GTCP 36-150[]	149	0.216666667	4	18.88	0.1807	0.0000	0.0000	0.1826
39	APU GTCP 36-150[]	149	0.216666667	81	382.30	3.6586	0.0001	0.0001	3.6974
40	APU GTCP 85 (200 HP)	235	0.216666667	3,103	23,098.60	221.0512	0.0062	0.0072	223.3956
42	APU GTCP 36-100	149	0.216666667	1,183	5,583.51	53.4336	0.0015	0.0017	54.0003
43	APU GTCP 36-150[]	146	0.216666667	140	647.47	6.1962	0.0002	0.0002	6.2619
44	APU GTCP 36-100	149	0.216666667	908	4,285.57	41.0124	0.0012	0.0013	41.4474
45	APU GTCP 36 (80HP)	221	0.216666667	705	4,935.34	47.2307	0.0013	0.0015	47.7316
46	APU GTCP 36-150[]	149	0.216666667	4	18.88	0.1807	0.0000	0.0000	0.1826
47	APU GTCP 36-150[]	149	0.216666667	81	382.30	3.6586	0.0001	0.0001	3.6974
					TOTAL	**743.75**	**0.02**	**0.02**	**751.64**

PAL1 WITH PROJECT STATIONARY GHG EMISSIONS

Operation ID	Equipment Type	Source	Usage (1000 CF)	Units	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
77	Boiler/Space Heater - Type 86	Natural Gas	631.40	1000 CF	34.47	0.00	0.00	34.50
77	Boiler/Space Heater - Type 86	Electricity	1,619,249.89	kWh	417.63	0.24	0.03	434.65

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
82	Diesel - (None specified. EPA default data used.) - Generator	4,155.53	158	0.82	166.4684	27,829.520	282.471	0.016	0.007	287.530
76	Diesel - (None specified. EPA default data used.) - Generator	22.94	158	0.82	166.4684	153.660	1.560	0.000	0.000	1.588
SUBTOTAL, GENERATORS							284.030	0.016	0.007	289.118
TOTAL, GENERATORS AND BOILER							**736.13**	**0.26**	**0.04**	**758.26**

PAL1 WITH PROJECT NONAIRCRAFT EMISSIONS

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
78	Diesel - Hi-Way F650 - Cabin Service Truck	667.69	210	0.53	166.468	3,841.297	38.989	0.002	0.001	39.688
79	Gasoline - Taylor Dunn - Cart	637.35	25	0.5	185.066	524.274	4.671	0.000	0.000	4.753
80	LPG - Toyota 5,000 lb - Fork Lift	1,244.11	54	0.3	185.066	1,939.406	11.145	0.000	0.000	11.146
81	Diesel - F350 - Fuel Truck	11,096.29	235	0.25	166.468	33,697.201	342.028	0.020	0.009	348.154
82	Diesel - TLD, 28 VDC - Ground Power Unit	4,155.53	71	0.75	185.066	12,715.941	129.067	0.007	0.003	131.379
83	Diesel - F250 / F350 - Service Truck	275.34	235	0.2	166.468	668.912	6.789	0.000	0.000	6.911
84	Gasoline - F250 / F350 - Service Truck	925.67	260	0.2	166.468	2,849.269	28.920	0.002	0.001	29.438
85	Diesel - Tennant - Sweeper	4,276.74	53	0.51	185.066	6,642.945	59.188	0.003	0.001	60.226
86	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	15.30	175	0.25	166.468	34.592	0.351	0.000	0.000	0.357
87	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	94.88	175	0.25	166.468	214.567	2.178	0.000	0.000	2.217
89	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	2,156.80	175	0.25	166.468	4,877.481	49.507	0.003	0.001	50.393
						TOTAL	**672.834**	**0.038**	**0.017**	**684.663**

NOTES:
GSE fuel flow rates taken from nonroad tables within AEDT database.
Emission factors for CH4, N2O and CO2 taken from FAA AQ handbook, Appendix C, page 68.

PAL1 NO PROJECT AIRCRAFT GREENHOUSE GAS POLLUTANT EMISSIONS

Aircraft Make/Model	AEDT Aircraft ID/Substitution	LTO Cycles	Sum of Fuel (g)[1]	Fuel (Gal)	Sum of CO2 (g)[1]	Sum of CH4[2] (lb)	Sum of N2O[2] (lb)	Annual CO2 (MT)	Annual CH4 (MT)	Annual N2O (MT)	Annual CO2e (MT)[3]
Beechcraft Bonanza	Raytheon Beech Bonanza 36*	2,613	30,640.47	11.26	96,670.67	0.17	0.00	252.60	0.21	0.00	259.63
Beechcraft Baron	Raytheon Beech Baron 58*	7,306	24,734.83	9.09	78,038.40	0.14	0.00	570.15	0.47	0.00	586.03
Bombardier Challenger 600	Bombardier Challenger 600	1,183	224,192.74	72.26	707,328.09	-	0.05	836.77	-	0.00	836.79
Cessna 172	Cessna 172 Skyhawk*	25,098	8,645.92	3.18	27,277.87	0.05	0.00	684.62	0.56	0.00	703.69
Cessna 182	Cessna 182*	1,655	11,093.28	4.08	34,999.29	0.06	0.00	57.92	0.05	0.00	59.54
Cessna 206	Cessna 206*	1,129	15,443.05	5.67	48,722.81	0.09	0.00	55.01	0.05	0.00	56.54
Cessna 208 Caravan	Cessna 208 Caravan	4,166	39,804.25	12.83	125,582.41	-	0.01	523.18	-	0.00	523.19
Cessna Citation CJ4	Cessna 525 CitationJet	3,558	1,123,874.61	362.24	3,545,824.41	-	0.25	12,616.04	-	0.00	12,616.31
Cessna Citation Bravo	Cessna 550 Citation II	341	157,574.37	50.79	497,147.14	-	0.03	169.53	-	0.00	169.53
Cessna Citation Sovereign	Cessna 680 Citation Sovereign	585	264,951.31	85.40	835,921.36	-	0.06	489.01	-	0.00	489.02
Cessna Citation X	Cessna 750 Citation X	805	272,423.93	87.81	859,497.49	-	0.06	691.90	-	0.00	691.91
Bombardier 700	Bombardier CRJ-700	3,103	451,457.67	145.51	1,424,348.97	-	0.10	4,419.75	-	0.00	4,419.85
Bombardier de Havilland Dash 8 Q200	Bombardier de Havilland Dash 8 Q200	1,095	142,166.64	45.82	448,535.74	-	0.03	491.15	-	0.00	491.16
Dornier 328 Jet	Dornier 328-100 Series	4	170,592.10	54.98	538,218.06	-	0.04	2.15	-	0.00	2.15
Eurocopter EC135	Eurocopter EC-130	14,254	64,519.48	20.80	203,558.97	-	0.01	2,901.53	-	0.00	2,901.59
Eclipse 500	Eclipse 500 / PW610F	1,105	28,059.53	9.04	88,527.81	-	0.01	97.82	-	0.00	97.83
Embraer 120	Embraer EMB120 Brasilia	81	136,746.45	44.08	431,435.07	-	0.03	34.95	-	0.00	34.95
Embraer 145	Embraer ERJ145	140	346,697.69	111.75	1,093,831.23	-	0.08	153.14	-	0.00	153.14
Embraer E-170	Embraer ERJ170	3,103	373,378.34	120.34	1,178,008.66	-	0.08	3,655.36	-	0.00	3,655.44
Dassault Falcon 2000	Dassault Falcon 20-C	250	260,316.85	83.90	821,299.65	-	0.06	205.32	-	0.00	205.33
Gulfstream GV/650	Gulfstream GV/650	705	610,581.72	196.80	1,926,385.32	-	0.13	1,358.10	-	0.00	1,358.13
Gulfstream G450	Gulfstream G350	908	498,192.33	160.57	1,571,796.80	-	0.11	1,427.19	-	0.00	1,427.22
Dash 6	BAE Jetstream 31	3,677	74,562.85	24.03	235,245.78	-	0.02	865.00	-	0.00	865.02
Learjet 70	Bombardier Learjet 70	1,378	132,982.33	42.86	419,559.25	-	0.03	578.15	-	0.00	578.16
Piaggio P.180 Avanti	Piaggio P.180 Avanti	173	92,881.61	29.94	293,041.46	-	0.02	50.70	-	0.00	50.70
GASEVP	Piper PA-24 Comanche*	7,840	10,263.75	3.77	32,382.13	0.06	0.00	253.88	0.21	0.00	260.95
Piper Warrior	Piper PA-28 Cherokee Series*	4,972	8,664.09	3.18	27,335.19	0.05	0.00	135.91	0.11	0.00	139.70
Piper Meridian	Piper PA46-TP Meridian	854	50,542.47	16.29	159,461.49	-	0.01	136.18	-	0.00	136.18
Robinson R22	Robinson R22B*	707	11,710.62	4.30	36,947.01	-	0.00	26.12	-	0.00	26.12
Robinson R44	Robinson R44 Raven / Lycoming O-540-F1B5*	2,826	34,712.19	12.75	109,516.96	0.20	0.00	309.49	0.25	0.00	318.11
Sikorsky SH-60 Seahawk	Sikorsky SH-60 Sea Hawk	478	54,886.06	17.69	173,165.53	-	0.01	82.77	-	0.00	82.77
Cirrus SR22	EADS Socata TB-9 Tampico*	1,439	8,664.09	3.18	27,335.19	0.05	0.00	39.34	0.03	0.00	40.43
							TOTAL	**34,170.73**	**1.93**	**0.00**	**34,237.09**

*Calculated based on AVGAS fuel; all other values based on Jet A

1. Emissions calculated by AEDT
2. Emission factors taken FAA Air Quality Handbook
3. GWP taken from FAA Air Quality Handbook

PAL1 NO PROJECT STATIONARY GHG EMISSIONS

Operation ID	Equipment Type	Source	Usage (1000 CF)	Units	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
58	Boiler/Space Heater - Type 86	Natural Gas	410.00	1000 CF	22.39	0.00	0.00	22.40
58	Boiler/Space Heater - Type 86	Electricity	1,051,460.97	kWh	271.19	0.16	0.02	282.24

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
82	Diesel - (None specified. EPA default data used.) - Generator	4,155.53	158	0.82	166.4684	27,829.520	282.471	0.016	0.007	287.530
76	Diesel - (None specified. EPA default data used.) - Generator	22.94	158	0.82	166.4684	153.660	1.560	0.000	0.000	1.588
SUBTOTAL, GENERATORS							284.030	0.016	0.007	289.118
TOTAL, GENERATORS AND BOILER							**577.60**	**0.17**	**0.03**	**593.76**

PAL1 NO PROJECT NONAIRCRAFT EMISSIONS

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
78	Diesel - Hi-Way F650 - Cabin Service Truck	667.69	210	0.53	166.468	3,841.297	38.989	0.002	0.001	39.688
79	Gasoline - Taylor Dunn - Cart	637.35	25	0.5	185.066	524.274	4.671	0.000	0.000	4.753
80	LPG - Toyota 5,000 lb - Fork Lift	1,244.11	54	0.3	185.066	1,939.406	11.145	0.000	0.000	11.146
81	Diesel - F350 - Fuel Truck	11,096.29	235	0.25	166.468	33,697.201	342.028	0.020	0.009	348.154
82	Diesel - TLD, 28 VDC - Ground Power Unit	4,155.53	71	0.75	185.066	12,715.941	129.067	0.007	0.003	131.379
83	Diesel - F250 / F350 - Service Truck	275.34	235	0.2	166.468	668.912	6.789	0.000	0.000	6.911
84	Gasoline - F250 / F350 - Service Truck	925.67	260	0.2	166.468	2,849.269	28.920	0.002	0.001	29.438
85	Diesel - Tennant - Sweeper	4,276.74	53	0.51	185.066	6,642.945	59.188	0.003	0.001	60.226
86	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	15.30	175	0.25	166.468	34.592	0.351	0.000	0.000	0.357
87	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	94.88	175	0.25	166.468	214.567	2.178	0.000	0.000	2.217
89	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	2,156.80	175	0.25	166.468	4,877.481	49.507	0.003	0.001	50.393
						TOTAL	**672.834**	**0.038**	**0.017**	**684.663**

NOTES:
GSE fuel flow rates taken from nonroad tables within AEDT database.
Emission factors for CH4, N2O and CO2 taken from FAA AQ handbook, Appendix C, page 68.

PAL2 WITH PROJECT AIRCRAFT GREENHOUSE GAS POLLUTANT EMISSIONS

Aircraft Make/Model	AEDT Aircraft ID/Substitution	LTO Cycles	Sum of Fuel (g)	Fuel (Gal)	Sum of CO2 (g)	Sum of $CH4^2$ (lb)	Sum of $N2O^2$ (lb)	Annual CO2 (MT)	Annual CH4 (MT)	Annual N2O (MT)	Annual CO2e $(MT)^3$
Beechcraft Bonanza	Raytheon Beech Bonanza 36*	2,613	30,975.43	11.38	97,727.46	0.18	0.00	255.36	0.21	0.00	262.47
Beechcraft Baron	Raytheon Beech Baron 58*	7,306	25,404.75	9.33	80,151.99	0.14	0.00	585.59	0.48	0.00	601.90
Bombardier Challenger 600	Bombardier Challenger 600	1,183	234,305.14	75.52	739,232.72	-	0.05	874.51	-	0.00	874.53
Cessna 172	Cessna 172 Skyhawk*	25,098	8,754.04	3.22	27,618.99	0.05	0.00	693.18	0.57	0.00	712.49
Cessna 182	Cessna 182*	1,655	11,201.40	4.12	35,340.42	0.06	0.00	58.49	0.05	0.00	60.12
Cessna 206	Cessna 206*	1,129	15,778.01	5.80	49,779.61	0.09	0.00	56.20	0.05	0.00	57.77
Cessna 208 Caravan	Cessna 208 Caravan	4,166	40,761.87	13.14	128,603.72	-	0.01	535.76	-	0.00	535.77
Cessna Citation CJ4	Cessna 525 CitationJet	3,558	1,195,530.61	385.33	3,771,899.09	-	0.26	13,420.42	-	0.00	13,420.70
Cessna Citation Bravo	Cessna 550 Citation II	341	163,107.57	52.57	514,604.39	-	0.04	175.48	-	0.00	175.48
Cessna Citation Sovereign	Cessna 680 Citation Sovereign	585	274,448.91	88.46	865,886.29	-	0.06	506.54	-	0.00	506.55
Cessna Citation X	Cessna 750 Citation X	805	280,416.33	90.38	884,713.51	-	0.06	712.19	-	0.00	712.21
Bombardier 700	Bombardier CRJ-700	5,855	466,361.27	150.31	1,471,369.83	-	0.10	8,614.87	-	0.00	8,615.05
Bombardier de Havilland Dash 8 Q200	Bombardier de Havilland Dash 8 Q200	2,067	149,092.09	48.05	470,385.54	-	0.03	972.29	-	0.00	972.31
Dornier 328 Jet	Dornier 328-100 Series	4	178,114.32	57.41	561,950.70	-	0.04	2.25	-	0.00	2.25
Eurocopter EC135	Eurocopter EC-130	14,254	64,519.48	20.80	203,558.97	-	0.01	2,901.53	-	0.00	2,901.59
Eclipse 500	Eclipse 500 / PW610F	1,105	28,059.53	9.04	88,527.81	-	0.01	97.82	-	0.00	97.83
Embraer 120	Embraer EMB120 Brasilia	81	142,589.38	45.96	449,869.47	-	0.03	36.44	-	0.00	36.44
Embraer 145	Embraer ERJ145	140	356,428.49	114.88	1,124,531.90	-	0.08	157.43	-	0.00	157.44
Embraer E-170	Embraer ERJ170	5,855	386,522.34	124.58	1,219,477.98	-	0.09	7,140.04	-	0.00	7,140.19
Dassault Falcon 2000	Dassault Falcon 20-C	250	265,828.85	85.68	838,690.01	-	0.06	209.67	-	0.00	209.68
Gulfstream GV/650	Gulfstream GV/650	705	630,933.72	203.36	1,990,595.88	-	0.14	1,403.37	-	0.00	1,403.40
Gulfstream G450	Gulfstream G350	908	521,512.33	168.09	1,645,371.40	-	0.11	1,494.00	-	0.00	1,494.03
Dash 6	BAE Jetstream 31	3,677	76,838.94	24.77	242,426.87	-	0.02	891.40	-	0.00	891.42
Learjet 70	Bombardier Learjet 70	1,378	138,494.33	44.64	436,949.61	-	0.03	602.12	-	0.00	602.13
Piaggio P.180 Avanti	Piaggio P.180 Avanti	173	95,796.12	30.88	302,236.77	-	0.02	52.29	-	0.00	52.29
GASEVP	Piper PA-24 Comanche*	7,840	10,598.71	3.89	33,438.93	0.06	0.00	262.16	0.21	0.00	269.46
Piper Warrior	Piper PA-28 Cherokee Series*	4,972	8,769.03	3.22	27,666.28	0.05	0.00	137.56	0.11	0.00	141.39
Piper Meridian	Piper PA46-TP Meridian	854	52,138.51	16.80	164,497.02	-	0.01	140.48	-	0.00	140.48
Robinson R22	Robinson R22B*	707	11,710.62	4.30	36,947.01	-	0.00	26.12	-	0.00	26.12
Robinson R44	Robinson R44 Raven / Lycoming O-540-F1B5*	2,826	34,712.19	12.75	109,516.96	0.20	0.00	309.49	0.25	0.00	318.11
Sikorsky SH-60 Seahawk	Sikorsky SH-60 Sea Hawk	478	54,886.06	17.69	173,165.53	-	0.01	82.77	-	0.00	82.77
Cirrus SR22	EADS Socata TB-9 Tampico*	1,439	8,769.03	3.22	27,666.28	0.05	0.00	39.81	0.03	0.00	40.92
							TOTAL	**43,447.66**	**1.96**	**0.00**	**43,515.28**

*Calculated based on AVGAS fuel; all other values based on Jet A

1. Emissions calculated by AEDT
2. Emission factors taken FAA Air Quality Handbook
3. GWP taken from FAA Air Quality Handbook

PAL2 APU GREENHOUSE GAS POLLUTANT EMISSIONS

Operation ID	Equipment Type	Fuel Usage (lb/hr)	Operating Time (Hours)	Annual Operations	Fuel Usage (gals)	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
16	APU GTCP 85 (200 HP)	235	0.216666667	5,855	43,584.37	417.0978	0.0118	0.0135	421.5215
24	APU GTCP 85 (200 HP)	235	0.216666667	5,855	43,584.37	417.0978	0.0118	0.0135	421.5215
34	APU GTCP 36-100	146	0.216666667	1,183	5,471.09	52.3577	0.0015	0.0017	52.9130
35	APU GTCP 36-150[]	149	0.216666667	140	660.77	6.3235	0.0002	0.0002	6.3906
36	APU GTCP 36-100	146	0.216666667	908	4,199.28	40.1867	0.0011	0.0013	40.6129
37	APU GTCP 36 (80HP)	221	0.216666667	705	4,935.34	47.2307	0.0013	0.0015	47.7316
38	APU GTCP 36-150[]	149	0.216666667	4	18.88	0.1807	0.0000	0.0000	0.1826
39	APU GTCP 36-150[]	149	0.216666667	81	382.30	3.6586	0.0001	0.0001	3.6974
42	APU GTCP 36-100	146	0.216666667	1,183	5,471.09	52.3577	0.0015	0.0017	52.9130
43	APU GTCP 36-150[]	149	0.216666667	140	660.77	6.3235	0.0002	0.0002	6.3906
44	APU GTCP 36-100	146	0.216666667	908	4,199.28	40.1867	0.0011	0.0013	40.6129
45	APU GTCP 36 (80HP)	221	0.216666667	705	4,935.34	47.2307	0.0013	0.0015	47.7316
46	APU GTCP 36-150[]	149	0.216666667	4	18.88	0.1807	0.0000	0.0000	0.1826
47	APU GTCP 36-150[]	149	0.216666667	81	382.30	3.6586	0.0001	0.0001	3.6974
					TOTAL	**1,134.07**	**0.03**	**0.04**	**1,146.10**

PAL2 WITH PROJECT STATIONARY GHG EMISSIONS

Operation ID	Equipment Type	Source	Usage (1000 CF)	Units	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
59	Boiler/Space Heater - Type 86	Natural Gas	631.40	1000 CF	34.47	0.00	0.00	34.50
59	Boiler/Space Heater - Type 86	Electricity	1,619,249.89	kWh	417.63	0.24	0.03	434.65

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
31	Diesel - (None specified. EPA default data used.) - Generator	4,431.52	158	0.82	166.4684	29,677.783	301.231	0.017	0.008	306.626
51	Diesel - (None specified. EPA default data used.) - Generator	24.47	158	0.82	166.4684	163.865	1.663	0.000	0.000	1.693
SUBTOTAL, GENERATORS							302.894	0.017	0.008	308.319
TOTAL, GENERATORS AND BOILER							**754.99**	**0.26**	**0.04**	**777.46**

PAL2 WITH PROJECT NONAIRCRAFT EMISSIONS

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
27	Diesel - Hi-Way F650 - Cabin Service Truck	712.03	210	0.53	166.468	4,096.411	41.579	0.002	0.001	42.324
28	Gasoline - Taylor Dunn - Cart	679.68	25	0.5	185.066	559.093	4.981	0.000	0.000	5.069
29	LPG - Toyota 5,000 lb - Fork Lift	1,326.74	54	0.3	185.066	2,068.209	11.885	0.000	0.000	11.886
30	Diesel - F350 - Fuel Truck	11,833.24	235	0.25	166.468	35,935.158	364.743	0.021	0.009	371.277
32	Diesel - TLD, 28 VDC - Ground Power Unit	293.62	71	0.75	185.066	898.484	9.120	0.001	0.000	9.283
33	Diesel - F250 / F350 - Service Truck	987.15	235	0.2	166.468	2,398.209	24.342	0.001	0.001	24.778
34	Gasoline - F250 / F350 - Service Truck	4,560.77	260	0.2	166.468	14,038.355	142.490	0.008	0.004	145.042
35	Diesel - Tennant - Sweeper	16.31	53	0.51	185.066	25.338	0.226	0.000	0.000	0.230
36	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	101.18	175	0.25	166.468	228.817	2.323	0.000	0.000	2.364
38	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	2,300.04	175	0.25	166.468	5,201.413	52.795	0.003	0.001	53.740
						TOTAL	**654.483**	**0.037**	**0.016**	**665.992**

NOTES:
GSE fuel flow rates taken from nonroad tables within AEDT database.
Emission factors for CH4, N2O and CO2 taken from FAA AQ handbook, Appendix C, page 68.

PAL2 NO PROJECT AIRCRAFT GREENHOUSE GAS POLLUTANT EMISSIONS

Aircraft Make/Model	AEDT Aircraft ID/Substitution	LTO Cycles	Sum of Fuel (g)	Fuel (Gal)	Sum of CO2 (g)	Sum of $CH4^2$ (lb)	Sum of $N2O^2$ (lb)	Annual CO2 (MT)	Annual CH4 (MT)	Annual N2O (MT)	Annual $CO2e (MT)^3$
Beechcraft Bonanza	Raytheon Beech Bonanza 36*	2,613	30,640.47	11.26	96,670.67	0.17	0.00	252.60	0.21	0.00	259.63
Beechcraft Baron	Raytheon Beech Baron 58*	7,306	24,734.83	9.09	78,038.40	0.14	0.00	570.15	0.47	0.00	586.03
Bombardier Challenger 600	Bombardier Challenger 600	1,183	224,192.74	72.26	707,328.09	-	0.05	836.77	-	0.00	836.79
Cessna 172	Cessna 172 Skyhawk*	25,098	8,645.92	3.18	27,277.87	0.05	0.00	684.62	0.56	0.00	703.69
Cessna 182	Cessna 182*	1,655	11,093.28	4.08	34,999.29	0.06	0.00	57.92	0.05	0.00	59.54
Cessna 206	Cessna 206*	1,129	15,443.05	5.67	48,722.81	0.09	0.00	55.01	0.05	0.00	56.54
Cessna 208 Caravan	Cessna 208 Caravan	4,166	39,804.25	12.83	125,582.41	-	0.01	523.18	-	0.00	523.19
Cessna Citation CJ4	Cessna 525 CitationJet	3,558	1,123,874.61	362.24	3,545,824.41	-	0.25	12,616.04	-	0.00	12,616.31
Cessna Citation Bravo	Cessna 550 Citation II	341	157,574.37	50.79	497,147.14	-	0.03	169.53	-	0.00	169.53
Cessna Citation Sovereign	Cessna 680 Citation Sovereign	585	264,951.31	85.40	835,921.36	-	0.06	489.01	-	0.00	489.02
Cessna Citation X	Cessna 750 Citation X	805	272,423.93	87.81	859,497.49	-	0.06	691.90	-	0.00	691.91
Bombardier 700	Bombardier CRJ-700	5,855	451,457.67	145.51	1,424,348.97	-	0.10	8,339.56	-	0.00	8,339.74
Bombardier de Havilland Dash 8 Q200	Bombardier de Havilland Dash 8 Q200	2,067	142,166.64	45.82	448,535.74	-	0.03	927.12	-	0.00	927.14
Dornier 328 Jet	Dornier 328-100 Series	4	170,592.10	54.98	538,218.06	-	0.04	2.15	-	0.00	2.15
Eurocopter EC135	Eurocopter EC-130	14,254	64,519.48	20.80	203,558.97	-	0.01	2,901.53	-	0.00	2,901.59
Eclipse 500	Eclipse 500 / PW610F	1,105	28,059.53	9.04	88,527.81	-	0.01	97.82	-	0.00	97.83
Embraer 120	Embraer EMB120 Brasilia	81	136,746.45	44.08	431,435.07	-	0.03	34.95	-	0.00	34.95
Embraer 145	Embraer ERJ145	140	346,697.69	111.75	1,093,831.23	-	0.08	153.14	-	0.00	153.14
Embraer E-170	Embraer ERJ170	5,855	373,378.34	120.34	1,178,008.66	-	0.08	6,897.24	-	0.00	6,897.38
Dassault Falcon 2000	Dassault Falcon 20-C	250	260,316.85	83.90	821,299.65	-	0.06	205.32	-	0.00	205.33
Gulfstream GV/650	Gulfstream GV/650	705	610,581.72	196.80	1,926,385.32	-	0.13	1,358.10	-	0.00	1,358.13
Gulfstream G450	Gulfstream G350	908	498,192.33	160.57	1,571,796.80	-	0.11	1,427.19	-	0.00	1,427.22
Dash 6	BAE Jetstream 31	3,677	74,562.85	24.03	235,245.78	-	0.02	865.00	-	0.00	865.02
Learjet 70	Bombardier Learjet 70	1,378	132,982.33	42.86	419,559.25	-	0.03	578.15	-	0.00	578.16
Piaggio P.180 Avanti	Piaggio P.180 Avanti	173	92,881.61	29.94	293,041.46	-	0.02	50.70	-	0.00	50.70
GASEVP	Piper PA-24 Comanche*	7,840	10,263.75	3.77	32,382.13	0.06	0.00	253.88	0.21	0.00	260.95
Piper Warrior	Piper PA-28 Cherokee Series*	4,972	8,664.09	3.18	27,335.19	0.05	0.00	135.91	0.11	0.00	139.70
Piper Meridian	Piper PA46-TP Meridian	854	50,542.47	16.29	159,461.49	-	0.01	136.18	-	0.00	136.18
Robinson R22	Robinson R22B*	707	11,710.62	4.30	36,947.01	-	0.00	26.12	-	0.00	26.12
Robinson R44	Robinson R44 Raven / Lycoming O-540-F1B5*	2,826	34,712.19	12.75	109,516.96	0.20	0.00	309.49	0.25	0.00	318.11
Sikorsky SH-60 Seahawk	Sikorsky SH-60 Sea Hawk	478	54,886.06	17.69	173,165.53	-	0.01	82.77	-	0.00	82.77
Cirrus SR22	EADS Socata TB-9 Tampico*	1,439	8,664.09	3.18	27,335.19	0.05	0.00	39.34	0.03	0.00	40.43
							TOTAL	**41,768.40**	**1.93**	**0.00**	**41,834.91**

*Calculated based on AVGAS fuel; all other values based on Jet A

1. Emissions calculated by AEDT
2. Emission factors taken FAA Air Quality Handbook
3. GWP taken from FAA Air Quality Handbook

PAL2 NO PROJECT STATIONARY GHG EMISSIONS

Operation ID	Equipment Type	Source	Usage (1000 CF)	Units	CO2 (MT)	CH4 (MT)	N2O (MT)	CO2e (MT)
58	Boiler/Space Heater - Type 86	Natural Gas	410.00	1000 CF	22.39	0.00	0.00	22.40
58	Boiler/Space Heater - Type 86	Electricity	1,051,460.97	kWh	271.19	0.16	0.02	282.24

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
31	Diesel - (None specified. EPA default data used.) - Generator	4,431.52	158	0.82	166.4684	29,677.783	301.231	0.017	0.008	306.626
51	Diesel - (None specified. EPA default data used.) - Generator	24.47	158	0.82	166.4684	163.865	1.663	0.000	0.000	1.693
SUBTOTAL, GENERATORS							302.894	0.017	0.008	308.319
TOTAL, GENERATORS AND BOILER							**596.46**	**0.18**	**0.03**	**612.96**

PAL2 NO PROJECT NONAIRCRAFT EMISSIONS

Operation ID	Equipment Type	Annual Operations (hours)	HP	Load Factor	Fuel Flow Rate (g/hp-hr)	Fuel Usage (gal)	CO2 (Metric tons)	CH4 (MT)	N2O (MT)	CO2e (MT)
27	Diesel - Hi-Way F650 - Cabin Service Truck	712.03	210	0.53	166.468	4,096.411	41.579	0.002	0.001	42.324
28	Gasoline - Taylor Dunn - Cart	679.68	25	0.5	185.066	559.093	4.981	0.000	0.000	5.069
29	LPG - Toyota 5,000 lb - Fork Lift	1,326.74	54	0.3	185.066	2,068.209	11.885	0.000	0.000	11.886
30	Diesel - F350 - Fuel Truck	11,833.24	235	0.25	166.468	35,935.158	364.743	0.021	0.009	371.277
32	Diesel - TLD, 28 VDC - Ground Power Unit	293.62	71	0.75	185.066	898.484	9.120	0.001	0.000	9.283
33	Diesel - F250 / F350 - Service Truck	987.15	235	0.2	166.468	2,398.209	24.342	0.001	0.001	24.778
34	Gasoline - F250 / F350 - Service Truck	4,560.77	260	0.2	166.468	14,038.355	142.490	0.008	0.004	145.042
35	Diesel - Tennant - Sweeper	16.31	53	0.51	185.066	25.338	0.226	0.000	0.000	0.230
36	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	101.18	175	0.25	166.468	228.817	2.323	0.000	0.000	2.364
38	Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck	2,300.04	175	0.25	166.468	5,201.413	52.795	0.003	0.001	53.740
						TOTAL	**654.483**	**0.037**	**0.016**	**665.992**

NOTES:
GSE fuel flow rates taken from nonroad tables within AEDT database.
Emission factors for CH4, N2O and CO2 taken from FAA AQ handbook, Appendix C, page 68.

Palomar Airport Master Plan
Alternative 1 - Mobile Emissions

Assumptions

Year	2036
Total Trips	2,288
Roundtrip Distance	13
Total VMT	28,600

Grams per Trip Emission Factors

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
0.67	1.14	0.28	0.00	0.00	0.00	120.70

Grams per Mile Emission Factors

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
0.07	0.86	0.10	0.00	0.84	0.21	240.72

Trip Emissions (lbs/day)

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2 (MT/yr)
3.37	5.73	1.42	0.01	0.01	0.01	100.80

VMT Emissions (lbs/day)

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2 (MT/yr)
4.57	54.53	5.99	0.15	52.91	13.49	2,512.86

Total Worker Commute Emissions (lbs/day)

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2 (MT/yr)
7.94	60.26	7.41	0.16	52.92	13.50	2,613.67

Palomar Airport Master Plan
Alternative 2 - Mobile Emissions

Assumptions

Year	2036
Total Trips	4,316
Roundtrip Distance	13
Total VMT	53,950

Grams per Trip Emission Factors

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
0.67	1.14	0.28	0.00	0.00	0.00	120.70

Grams per Mile Emission Factors

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
0.07	0.86	0.10	0.00	0.84	0.21	240.72

Trip Emissions (lbs/day)

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2 (MT/yr)
6.35	10.81	2.68	0.01	0.01	0.01	190.15

VMT Emissions (lbs/day)

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2 (MT/yr)
8.63	102.87	11.31	0.28	99.81	25.45	4,740.18

Total Worker Commute Emissions (lbs/day)

ROC	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2 (MT/yr)
14.98	113.68	13.99	0.30	99.82	25.46	4,930.33

Supplement to
PEIR Appendix H

Air Quality and Greenhouse Gas Emissions
Supplemental Report for the

McClellan-Palomar Airport Master Plan Update:
Eastern Parcel MALSR (Medium-Intensity
Approach Lighting System with Runway
Alignment Indicator Lights) Construction

(Helix Environmental Planning,
dated August 31, 2018)

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August 31, 2018 CSD-05.16

Ms. Cynthia Curtis
Department of Public Works, Environmental
5510 Overland Ave, Suite 410
San Diego, CA 92123

Subject: Air Quality and Greenhouse Gas Emissions Supplemental Report for the McClellan-Palomar Airport Master Plan Update: Eastern Parcel Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) Construction

Dear Ms. Curtis:

This letter summarizes potential air quality and greenhouse gas (GHG) emissions impacts on County Airports-owned property on the 18.8-acre Eastern Parcel study area of the McClellan-Palomar Airport Master Plan (Master Plan), which is a part of a larger County-owned parcel east of El Camino Real. These impacts are associated with the potential shifts of existing Federal Aviation Administration (FAA)-owned navigational aid lighting on the Eastern Parcel from its current location to approximately 123 feet farther north on the Eastern parcel to parallel the associated shift in the runway on the airport site.

The purpose of this report is to provide an analysis of potential air quality and GHG emissions impacts associated with Phase 12 construction within the Eastern Parcel. These impacts, which were not analyzed in the 2018 Draft Program Environmental Impact Report (Draft PEIR; County 2018a), the Air Quality Technical Report (AQTR; C&S Engineers 2018), the Climate Change Technical Report (CCTR; C&S Engineers 2017), or the Greenhouse Gas Emissions Memorandum (GHG Memo; County 2018b) for the project, are addressed in this supplemental document. This supplemental letter report provides the air quality and GHG resources technical documentation necessary for review of the Eastern Parcel impacts under the California Environmental Quality Act (CEQA) by the County of San Diego (County) and other responsible agencies for the project and is intended to supplement the information provided in the 2018 Draft PEIR, 2018 AQTR, 2017 CCTR, and 2018 GHG Memo for the project.

EASTERN PARCEL PROJECT COMPONENTS

In addition to the project components described in the 2018 AQTR and 2017 CCTR, the project may relocate the existing navigation aids known as Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) on the Eastern Parcel. The MALSR is a FAA-owned and operated system of lights that provide pilots with navigational assistance at the runway end. It is anticipated that with the shift of the runway to the north, a corresponding shift in the location of the existing MALSR lights footings and associated gravel access road would be needed. FAA design standards require a 20 foot-wide maintenance access road to and between each lighting structure. Entry to the proposed access road will be via the existing curb entry at El Camino Real. It is anticipated that once installation of the new MALSR location is completed, the existing gravel access road and light structures would be removed as they are no longer necessary.

If MALSR structures relocation is deemed necessary by the FAA, the FAA-required 20 foot-wide gravel access road would extend approximately 1,200 feet east from El Camino Real with light structures installed every 200 feet. Each structure would sit on a concrete pad of approximately 10 feet by 10 feet. Conduit would be trenched in between concrete pads underneath the gravel access road. If the runway is extended an additional 200 feet in its current alignment, an additional concrete pad and lighting structure would be placed 200 feet east of the existing lighting, in line with the existing access road along the MALSR's existing location. Electrical lines would be extended underground to the new structure by an approximately 4-foot wide temporary construction trench.

The FAA is the owner and responsible agency for all aspects of this navigational aid lighting system (i.e. layout and placement of the structure according to FAA design standards, property ownership, maintenance, etc.), and relocation of the lights would be considered a federal action. The FAA has an existing lease with the County for the current MALSR system at the Eastern Parcel, and has the ability to manage the structure as they deem necessary for airport safety. Although this project element was shown and described in the PEIR released for public review, the conceptual placement and alignment of the light relocation was not designed or calculated for potential impacts. This Eastern Parcel component of Phase 12 is being analyzed now to describe the potential air quality and GHG emissions impacts on the County-owned property if or when the FAA funds relocation of the structures and access road.

METHODOLOGY

As described in the AQTR and CCTR (C&S Engineers 2018; C&S Engineers 2017), construction emissions are assessed using the California Emissions Estimator Model (CalEEMod). It is important to note that where the AQTR and CCTR utilized CalEEMod Version 2013.2.2, this analysis utilized CalEEMod Version 2016.3.2 which contains OFFROAD and EMFAC2014 updates from the California Air Resource Board (CARB) models for off-road equipment and on-road vehicles, respectively. The construction analysis included modeling of the projected

construction equipment that would be used during each construction activity and quantities of earth and debris to be moved. Only temporary impacts are associated with the MALSR relocation; operation of the lighting system would not generate ongoing air emissions. The model calculates emissions of the following criteria pollutants: carbon monoxide (CO), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur dioxide (SO_2), and the ozone precursors volatile organic gases (VOCs) and nitrogen oxides (NO_X). CalEEMod also calculates GHG emissions, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and carbon dioxide equivalent (CO_2e).

Construction input data for CalEEMod include, but are not limited to, (1) the anticipated start and finish dates of construction activity; (2) inventories of construction equipment to be used; (3) areas to be excavated and graded; and (4) volumes of materials to be exported from and imported to the project area.

Previous Analysis

The previous analysis assessed runway relocation and extension for Phase 12 of the Master Plan; including demolition of approximately 738,000 square feet (or 82,000 square yards) over 195 days, and paving over 16 days. Schedule was based on the assumption of 420 square yards of pavement removal per shift and 2,000 cubic yards of asphalt/concrete production per shift with two crews (C&S Engineers 2018). Demolition volumes were calculated using a pavement density of 2.1 tons per cubic yard, yielding approximately 115,374 tons of demolition debris (C&S Engineers 2018). Emissions in the previous analysis were estimated using CalEEMod Version 2013.2.2.

Revised Analysis

The revised analysis, provided herein, includes the assumptions specified in the previous analysis, as well as construction emissions for demolition of the existing MALSR and relocation and installation of the new MALSR and access road. Assuming a pavement density of 2.1 tons per cubic yard of pavement, the existing light structures, which sit on 100-square foot concrete pads, would produce approximately 79 tons of demolition debris. Therefore, revised Phase 12 (incorporates MALSR relocation) demolition would produce a total of approximately 115,435 tons. The MALSR relocation would require grading of approximately 24,600 square feet; including 600 square feet for the installation of six new concrete pads and 24,000 square feet for the new gravel access road. Construction would require heavy equipment during demolition, grading, construction of concrete pad and lighting installation, and paving. Construction equipment estimates are based on assumptions provided in the AQTR (C&S Engineers 2018) and CalEEMod defaults. The latest version of CalEEMod, Version 2016.3.2, which contains updated emission factors for on- and off-road equipment, was used for this revised analysis.

Construction design features would be in accordance with San Diego Air Pollution Control District (SDAPCD) Rule 55 Fugitive Dust Control Practices; requiring the use of an on-site water truck to wet down active grading areas and roads at least twice daily, providing 12 percent moisture content to unpaved roads, and limiting vehicle speeds to 15 miles per hour.

AIR QUALITY EMISSIONS IMPACT ANALYSIS

Maximum Daily Construction Emissions

The project would generate criteria pollutants during demolition, grading for the gravel access road, construction and installation of MALSR, and paving of the new runway. Construction emissions would be short-term and temporary and would cease with construction termination.

The results of the calculations for Phase 12 construction are shown in Table 1, *Phase 12 Maximum Daily Construction Emissions*. The data are presented as the maximum anticipated daily emissions and are compared to construction emissions from the previous analysis. As shown, when compared to the previous analysis (C&S Engineers 2018), Phase 12 construction emissions would not change substantially. As shown in Table 1, emissions of CO, PM_{10}, and $PM_{2.5}$ decrease under the revised analysis. This is due to the updated emission factors contained in the latest version of CalEEMod used.

Table 1
PHASE 12 MAXIMUM DAILY CONSTRUCTION EMISSIONS

Phase 12	Pollutant Emissions (pounds/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Demolition	2.42	27.65	23.44	0.08	7.79	2.00
Grading	0.60	6.14	6.18	0.01	0.52	0.25
Construction and Installation of MALSR	0.72	6.65	6.87	0.02	0.38	0.29
Paving	3.73	8.60	14.81	0.02	0.54	0.42
Revised Phase 12 Maximum Daily Emissions[a]	**3.73**	**27.65**	**23.44**	**0.08**	**7.79**	**2.00**
Previous Phase 12 Emissions[b]	3.70	24.20	35.79	0.08	14.96	3.18
Difference in Maximum Daily Emissions	*+0.03*	*+3.44*	*-12.35*	*0.00*	*-7.17*	*-1.19*

[a] Revised Phase 12 Emissions (CalEEMod; Attachment A)
[b] Previous Phase 12 Emissions (C&S Engineers 2018; Table 12, Page 3-13)

As stated in the AQTR, if each component of the project is constructed with no overlap in construction phasing, there would be no exceedance of the SDAPCD's screening level thresholds (SLTs). However, in the event that phasing overlaps, emissions for each Master Plan Term, Near Term, Intermediate Term, and Long Term, are summed and compared to the SDAPCD SLTs. Phase 12 is a Long Term project component and therefore, no changes would occur to Near Term or Intermediate Term emissions. As shown in Table 2, *Long Term Maximum Daily Construction Emissions*, total Long Term project emissions would remain below SDAPCD SLTs.

Table 2
LONG TERM PHASE PROJECTS MAXIMUM DAILY CONSTRUCTION EMISSIONS

Master Plan Term	Master Plan Project Phases	Pollutant Emissions (pounds/day)					
		VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Previous Total Long-Term Project Emissions	Phases 12[a]-16	62.87	83.13	127.35	0.28	61.24	23.78
Revised Total Long-Term Project Emissions	**Phases 12[b]-16**	**62.90**	**86.57**	**115.00**	**0.28**	**54.07**	**22.60**
SDAPCD SLT Threshold (lbs/day)		*75*	*250*	*550*	*250*	*100*	*55*
Significant Impact?		***No***	***No***	***No***	***No***	***No***	***No***

[a] Previous Phase 12 Emissions (C&S Engineers 2018; Table 14, Page 4-5)
[b] Revised Phase 12 Emissions (CalEEMod; Attachment A)

Maximum Annual Construction Emissions

Master Plan Phase 12 annual construction emissions are presented in Table 3, *Phase 12 Maximum Annual Construction Emissions*. For comparison, Table 3 displays the maximum construction emissions in tons per year for the previous and revised analysis.

Table 3
PHASE 12 MAXIMUM ANNUAL CONSTRUCTION EMISSIONS

Phase 12	Pollutant Emissions (tons/year)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Previous Phase 12 Maximum Annual Emissions[a] – 2028	0.32	2.43	3.53	0.01	1.46	0.31
Revised Phase 12 Maximum Annual Emissions[b] – 2028	**0.27**	**2.82**	**2.44**	**0.01**	**0.76**	**0.20**
Difference in Maximum Annual Emissions	*-0.05*	*+0.39*	*-1.08*	*0.00*	*-0.70*	*-0.11*

[a] Previous Phase 12 Emissions (C&S Engineers 2018)
[b] Revised Phase 12 Emissions (CalEEMod; Attachment A)

Long Term annual construction emissions are compared to both SLTs and the federal de minimis threshold levels (tons per year). Table 4, *Total Long Term Maximum Annual Construction Emissions*, shows no exceedances would occur as a result of Master Plan Phases 12 through 16.

Table 4
TOTAL LONG TERM MAXIMUM ANNUAL CONSTRUCTION EMISSIONS

Master Plan Term	Master Plan Project Numbers	Pollutant Emissions (tons/year)					
		VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Previous Total Long-Term Project Emissions	Phases 12[a]-16	0.54	4.11	5.99	0.01	2.44	0.6
Total Long-Term Project Emissions	**Phases 12[b]-16**	**0.49**	**4.50**	**4.91**	**0.01**	**1.74**	**0.49**
SDAPCD SLT Threshold		*13.7*	*40*	*100*	*40*	*15*	*10*
Federal De Minimis Threshold Levels[c]		*100*	*100*	*n/a*	*n/a*	*n/a*	*n/a*
Significant Impact?		***No***	***No***	***No***	***No***	***No***	***No***

[a] Previous Phase 12 Emissions (C&S Engineers 2018; Table 15, Page 4-6)
[b] Revised Phase 12 Emissions (CalEEMod; Attachment A)
[c] For construction emissions, federal de minimis threshold levels are only applicable to the criteria pollutants in which San Diego County is designated as non-attainment or maintenance

GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

Total Phase 12 Construction Emissions

The project would generate GHG emissions during construction. Construction GHG emissions are generated by vehicle exhaust from off-road construction equipment, on-road hauling trucks, and worker commuting trips. As described above, GHG emissions were estimated using CalEEMod. Input details and output are provided in Attachment A. The estimated GHG emissions for the project are shown in Table 5, *Phase 12 Greenhouse Gas Construction Emissions*. For comparison purposes, Table 5 also includes GHG emissions totals from the previous analysis for Phase 12. As presented, the revised Phase 12 analysis, which incorporates MALSR relocation, would not substantially increase GHG emissions as compared to the previous analysis.

Table 5
PHASE 12 GREENHOUSE GAS CONSTRUCTION EMISSIONS

Construction Phase	Metric Tons			
	CO_2	CH_4	N_2O	Total CO_2e
Demolition	741.53	0.13	0.00	744.80
Grading	5.86	0.00	0.00	5.91
Construction and Installation of MALSR	3.35	0.00	0.00	3.36
Paving	16.66	0.01	0.00	16.79
Revised Phase 12 Total[a] Daily Emissions[c]	**767.41**	**0.14**	**0.00**	**770.86**
Previous Phase 12 Analysis[b]	725.32	0.10	0.00	727.50
Difference in Phase 12 Greenhouse Gas Emissions	*+42.09*	*+0.04*	*0.00*	*+43.36*

[a] Revised Phase 12 Emissions (CalEEMod; Attachment A)
[b] Previous Phase 12 Emissions (C&S Engineers 2017; Table 3, Page 3-5)
[c] Totals may not sum due to rounding

As recommended by the California Air Pollution Control Officer's Association (CAPCOA; 2008) and used in the GHG Memo (County 2018b), the total Master Plan project emissions (Phases 1-16) are amortized over the lifetime of the project component. The Draft PEIR (County 2018a) identifies the lifetime of each project componentas 20 years. Therefore, as shown in Table 6, *Project Total Greenhouse Gas Construction Emissions*, total project GHG emissions would generate 3,597.27 metric tons CO_2e, resulting in approximately 182.4 metric tons CO_2e per year.

Table 6
PROJECT TOTAL GREENHOUSE GAS CONSTRUCTION EMISSIONS

Construction Phase	Total CO_2e (Metric Tons)
Previous Project Total[a]	3,605.01
Revised Project Total[b]	**3,648.37**
Amortized GHG Emissions (of revised total)	***182.4***
Screening Threshold[c]	*900 MT CO_2e per year*
Significant Impact?	***No***

[a] Previous Phase 12 Emissions (C&S Engineers 2017; Table 3, Page 3-5)
[b] Revised Phase 12 Emissions (CalEEMod; Attachment A)
[c] CAPCOA 2008

SUMMARY

As described above, when compared to previous analyses (C&S Engineers 2017, 2018; County 2018b), the revised analysis of Phase 12 construction emissions would not result in a substantial increase and emissions of criteria pollutants and GHGs would be below applicable thresholds. Potential air quality and GHG emissions impacts on the Eastern Parcel associated with the relocation of navigational lighting would be less than significant and no additional mitigation measures would be required.

We appreciate the opportunity to provide you with this letter report. Please do not hesitate to contact me at 619-462-1515 if you have any questions or require further assistance.

Sincerely,

Victor Ortiz
Senior Air Quality Specialist

Enclosures:

Attachment A: CalEEMod Output

REFERENCES

California Air Pollution Control Officer's Association (CAPCOA). 2008. CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.

C&S Engineers, Inc. 2018. Draft Air Quality Technical Report for the McClellan-Palomar Airport Master Plan Update. January.

2017. Draft Climate Change Technical Report for the McClellan-Palomar Airport Master Plan Update. December.

County of San Diego (County). 2018a. Draft Program Environmental Impact Report. McClellan-Palomar Airport Master Plan Update. SCH# 2016021105. January.

2018b. Supplement to Draft Program Environmental Impact Report Appendix H – Greenhouse Gas Emissions Analysis Memorandum for the McClellan-Palomar Airport Master Plan Update Draft PEIR. June.

2007. Guidelines for Determining Significance and Report Format and Content Requirements, Air Quality. March.

Attachment A

CalEEMod Model Outputs

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24)

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	738.00	1000sqft	16.94	738,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Summer

Project Characteristics -

Land Use -

Construction Phase - Schedule based on the assumption of 420 square yards of pavement removal per shift and 2,000 cubic yards of asphalt/concrete production per shift with two crews (AQTR C&S Engineers 2018)
Additional phases added for grading new gravel access road and installation of new MALSR

Off-road Equipment - Grading for 1,200' gravel access road

Off-road Equipment - Installing new MALSR

Off-road Equipment -

Grading -

Demolition - Includes demo debris for 82,000 SY, and 56 SY for existing MALSR
Assumes pavement density of 2.1 CY/Ton (AQTR C&S Engineers 2017)

Trips and VMT - Building trips per CalEEMod Appendix A:
0.42 worker trips per 1,000sf
0.1639 vendor trips per 1,000sf
MALSR installation area and Gravel Access Road: 24,000sf

Construction Off-road Equipment Mitigation -

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	5.00
tblConstructionPhase	NumDays	20.00	195.00
tblConstructionPhase	NumDays	30.00	10.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	PhaseEndDate	5/18/2018	10/20/2028
tblConstructionPhase	PhaseEndDate	1/27/2017	9/29/2028
tblConstructionPhase	PhaseEndDate	3/24/2017	10/13/2028
tblConstructionPhase	PhaseEndDate	6/15/2018	11/13/2028
tblConstructionPhase	PhaseStartDate	3/25/2017	10/16/2028
tblConstructionPhase	PhaseStartDate	1/1/2017	1/3/2028
tblConstructionPhase	PhaseStartDate	2/11/2017	10/2/2028
tblConstructionPhase	PhaseStartDate	5/19/2018	10/23/2028
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	121.00	3.93
tblTripsAndVMT	WorkerTripNumber	310.00	10.08

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2028	3.7258	27.6185	23.3157	0.0808	13.9739	0.8691	14.8429	2.2556	0.8075	3.0631	0.0000	8,420.9901	8,420.9901	1.4718	0.0000	8,457.7841
Maximum	**3.7258**	**27.6185**	**23.3157**	**0.0808**	**13.9739**	**0.8691**	**14.8429**	**2.2556**	**0.8075**	**3.0631**	**0.0000**	**8,420.9901**	**8,420.9901**	**1.4718**	**0.0000**	**8,457.7841**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2028	3.7258	27.6185	23.3157	0.0808	6.9186	0.8691	7.7877	1.1872	0.8075	1.9947	0.0000	8,420.9901	8,420.9901	1.4718	0.0000	8,457.7841
Maximum	**3.7258**	**27.6185**	**23.3157**	**0.0808**	**6.9186**	**0.8691**	**7.7877**	**1.1872**	**0.8075**	**1.9947**	**0.0000**	**8,420.9901**	**8,420.9901**	**1.4718**	**0.0000**	**8,457.7841**

	ROG	NOx	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**	**50.49**	**0.00**	**47.53**	**47.37**	**0.00**	**34.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**	**0.0000**	**0.1719**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**	**0.0000**	**0.1719**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2028	9/29/2028	5	195	
2	Grading	Grading	10/2/2028	10/13/2028	5	10	
3	Building Construction	Building Construction	10/16/2028	10/20/2028	5	5	
4	Paving	Paving	10/23/2028	11/13/2028	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5

Acres of Paving: 16.94

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

OffRoad Equipment

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	11,416.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	10.08	3.93	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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	lb/day										lb/day					
Fugitive Dust					12.8277	0.0000	12.8277	1.9426	0.0000	1.9426			0.0000			0.0000
Off-Road	2.0926	19.1966	19.4184	0.0388		0.8528	0.8528		0.7920	0.7920		3,747.5996	3,747.5996	1.0464		3,773.7606
Total	**2.0926**	**19.1966**	**19.4184**	**0.0388**	**12.8277**	**0.8528**	**13.6805**	**1.9426**	**0.7920**	**2.7345**		**3,747.5996**	**3,747.5996**	**1.0464**		**3,773.7606**

3.2 Demolition - 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	lb/day										lb/day					
Hauling	0.2728	8.4026	3.6447	0.0411	1.0229	0.0156	1.0386	0.2803	0.0150	0.2953		4,579.2016	4,579.2016	0.4233		4,589.7834
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0193	0.2527	9.4000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		94.1890	94.1890	2.0400e-003		94.2401
Total	**0.3095**	**8.4219**	**3.8973**	**0.0420**	**1.1462**	**0.0163**	**1.1625**	**0.3130**	**0.0156**	**0.3286**		**4,673.3905**	**4,673.3905**	**0.4253**		**4,684.0235**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7725	0.0000	5.7725	0.8742	0.0000	0.8742			0.0000			0.0000
Off-Road	2.0926	19.1966	19.4184	0.0388		0.8528	0.8528		0.7920	0.7920	0.0000	3,747.5996	3,747.5996	1.0464		3,773.7606
Total	**2.0926**	**19.1966**	**19.4184**	**0.0388**	**5.7725**	**0.8528**	**6.6252**	**0.8742**	**0.7920**	**1.6661**	**0.0000**	**3,747.5996**	**3,747.5996**	**1.0464**		**3,773.7606**

3.2 Demolition - 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	lb/day										lb/day					
Hauling	0.2728	8.4026	3.6447	0.0411	1.0229	0.0156	1.0386	0.2803	0.0150	0.2953		4,579.2016	4,579.2016	0.4233		4,589.7834
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0193	0.2527	9.4000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		94.1890	94.1890	2.0400e-003		94.2401
Total	**0.3095**	**8.4219**	**3.8973**	**0.0420**	**1.1462**	**0.0163**	**1.1625**	**0.3130**	**0.0156**	**0.3286**		**4,673.3905**	**4,673.3905**	**0.4253**		**4,684.0235**

3.3 Grading - 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	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5754	6.1269	6.0534	0.0129		0.2194	0.2194		0.2019	0.2019		1,244.3513	1,244.3513	0.4025		1,254.4125
Total	**0.5754**	**6.1269**	**6.0534**	**0.0129**	**0.5303**	**0.2194**	**0.7497**	**0.0573**	**0.2019**	**0.2591**		**1,244.3513**	**1,244.3513**	**0.4025**		**1,254.4125**

3.3 Grading - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0103	0.1348	5.0000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		50.2341	50.2341	1.0900e-003		50.2614
Total	**0.0196**	**0.0103**	**0.1348**	**5.0000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**50.2341**	**50.2341**	**1.0900e-003**		**50.2614**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.5754	6.1269	6.0534	0.0129		0.2194	0.2194		0.2019	0.2019	0.0000	1,244.3513	1,244.3513	0.4025		1,254.4125
Total	**0.5754**	**6.1269**	**6.0534**	**0.0129**	**0.2386**	**0.2194**	**0.4581**	**0.0258**	**0.2019**	**0.2277**	**0.0000**	**1,244.3513**	**1,244.3513**	**0.4025**		**1,254.4125**

3.3 Grading - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0196	0.0103	0.1348	5.0000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		50.2341	50.2341	1.0900e-003		50.2614
Total	**0.0196**	**0.0103**	**0.1348**	**5.0000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**50.2341**	**50.2341**	**1.0900e-003**		**50.2614**

3.4 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	lb/day										lb/day					
Off-Road	0.6858	6.3541	6.6210	0.0139		0.2713	0.2713		0.2584	0.2584		1,310.5547	1,310.5547	0.2343		1,316.4119
Total	**0.6858**	**6.3541**	**6.6210**	**0.0139**		**0.2713**	**0.2713**		**0.2584**	**0.2584**		**1,310.5547**	**1,310.5547**	**0.2343**		**1,316.4119**

3.4 Building Construction - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.4800e-003	0.2783	0.0815	9.9000e-004	0.0266	3.1000e-004	0.0269	7.6700e-003	3.0000e-004	7.9600e-003		107.5731	107.5731	6.9300e-003		107.7464
Worker	0.0246	0.0130	0.1698	6.3000e-004	0.0828	4.5000e-004	0.0833	0.0220	4.1000e-004	0.0224		63.2950	63.2950	1.3700e-003		63.3293
Total	**0.0321**	**0.2913**	**0.2513**	**1.6200e-003**	**0.1094**	**7.6000e-004**	**0.1102**	**0.0296**	**7.1000e-004**	**0.0303**		**170.8681**	**170.8681**	**8.3000e-003**		**171.0757**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6858	6.3541	6.6210	0.0139		0.2713	0.2713		0.2584	0.2584	0.0000	1,310.5547	1,310.5547	0.2343		1,316.4119
Total	**0.6858**	**6.3541**	**6.6210**	**0.0139**		**0.2713**	**0.2713**		**0.2584**	**0.2584**	**0.0000**	**1,310.5547**	**1,310.5547**	**0.2343**		**1,316.4119**

3.4 Building Construction - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.4800e-003	0.2783	0.0815	9.9000e-004	0.0266	3.1000e-004	0.0269	7.6700e-003	3.0000e-004	7.9600e-003		107.5731	107.5731	6.9300e-003		107.7464
Worker	0.0246	0.0130	0.1698	6.3000e-004	0.0828	4.5000e-004	0.0833	0.0220	4.1000e-004	0.0224		63.2950	63.2950	1.3700e-003		63.3293
Total	**0.0321**	**0.2913**	**0.2513**	**1.6200e-003**	**0.1094**	**7.6000e-004**	**0.1102**	**0.0296**	**7.1000e-004**	**0.0303**		**170.8681**	**170.8681**	**8.3000e-003**		**171.0757**

3.5 Paving - 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	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	2.7739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6891**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.5 Paving - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0193	0.2527	9.4000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		94.1890	94.1890	2.0400e-003		94.2401
Total	**0.0367**	**0.0193**	**0.2527**	**9.4000e-004**	**0.1232**	**6.7000e-004**	**0.1239**	**0.0327**	**6.2000e-004**	**0.0333**		**94.1890**	**94.1890**	**2.0400e-003**		**94.2401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	2.7739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6891**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.5 Paving - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0193	0.2527	9.4000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		94.1890	94.1890	2.0400e-003		94.2401
Total	**0.0367**	**0.0193**	**0.2527**	**9.4000e-004**	**0.1232**	**6.7000e-004**	**0.1239**	**0.0327**	**6.2000e-004**	**0.0333**		**94.1890**	**94.1890**	**2.0400e-003**		**94.2401**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.617626	0.036451	0.176904	0.096837	0.011340	0.005282	0.018425	0.026503	0.001944	0.001632	0.005548	0.000800	0.000709

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Unmitigated	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.8500e-003	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**		**0.1719**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.8500e-003	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**		**0.1719**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24)

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	738.00	1000sqft	16.94	738,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Winter

Project Characteristics -

Land Use -

Construction Phase - Schedule based on the assumption of 420 square yards of pavement removal per shift and 2,000 cubic yards of asphalt/concrete production per shift with two crews (AQTR C&S Engineers 2018)
Additional phases added for grading new gravel access road and installation of new MALSR

Off-road Equipment - Grading for 1,200' gravel access road

Off-road Equipment - Installing new MALSR

Off-road Equipment -

Grading -

Demolition - Includes demo debris for 82,000 SY, and 56 SY for existing MALSR
Assumes pavement density of 2.1 CY/Ton (AQTR C&S Engineers 2017)

Trips and VMT - Building trips per CalEEMod Appendix A:
0.42 worker trips per 1,000sf
0.1639 vendor trips per 1,000sf
MALSR installation area and Gravel Access Road: 24,000sf

Construction Off-road Equipment Mitigation -

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Winter

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	5.00
tblConstructionPhase	NumDays	20.00	195.00
tblConstructionPhase	NumDays	30.00	10.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	PhaseEndDate	5/18/2018	10/20/2028
tblConstructionPhase	PhaseEndDate	1/27/2017	9/29/2028
tblConstructionPhase	PhaseEndDate	3/24/2017	10/13/2028
tblConstructionPhase	PhaseEndDate	6/15/2018	11/13/2028
tblConstructionPhase	PhaseStartDate	3/25/2017	10/16/2028
tblConstructionPhase	PhaseStartDate	1/1/2017	1/3/2028
tblConstructionPhase	PhaseStartDate	2/11/2017	10/2/2028
tblConstructionPhase	PhaseStartDate	5/19/2018	10/23/2028
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	121.00	3.93
tblTripsAndVMT	WorkerTripNumber	310.00	10.08

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2028	3.7314	27.6451	23.4408	0.0801	13.9739	0.8694	14.8433	2.2556	0.8078	3.0634	0.0000	8,337.8338	8,337.8338	1.4806	0.0000	8,374.8483
Maximum	**3.7314**	**27.6451**	**23.4408**	**0.0801**	**13.9739**	**0.8694**	**14.8433**	**2.2556**	**0.8078**	**3.0634**	**0.0000**	**8,337.8338**	**8,337.8338**	**1.4806**	**0.0000**	**8,374.8483**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2028	3.7314	27.6451	23.4408	0.0801	6.9186	0.8694	7.7880	1.1872	0.8078	1.9950	0.0000	8,337.8338	8,337.8338	1.4806	0.0000	8,374.8483
Maximum	**3.7314**	**27.6451**	**23.4408**	**0.0801**	**6.9186**	**0.8694**	**7.7880**	**1.1872**	**0.8078**	**1.9950**	**0.0000**	**8,337.8338**	**8,337.8338**	**1.4806**	**0.0000**	**8,374.8483**

	ROG	NOx	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**	**50.49**	**0.00**	**47.53**	**47.37**	**0.00**	**34.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**	**0.0000**	**0.1719**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**	**0.0000**	**2.7000e-004**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**	**0.0000**	**0.1719**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2028	9/29/2028	5	195	
2	Grading	Grading	10/2/2028	10/13/2028	5	10	
3	Building Construction	Building Construction	10/16/2028	10/20/2028	5	5	
4	Paving	Paving	10/23/2028	11/13/2028	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5

Acres of Paving: 16.94

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

OffRoad Equipment

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	11,416.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	10.08	3.93	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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	lb/day										lb/day					
Fugitive Dust					12.8277	0.0000	12.8277	1.9426	0.0000	1.9426			0.0000			0.0000
Off-Road	2.0926	19.1966	19.4184	0.0388		0.8528	0.8528		0.7920	0.7920		3,747.5996	3,747.5996	1.0464		3,773.7606
Total	**2.0926**	**19.1966**	**19.4184**	**0.0388**	**12.8277**	**0.8528**	**13.6805**	**1.9426**	**0.7920**	**2.7345**		**3,747.5996**	**3,747.5996**	**1.0464**		**3,773.7606**

3.2 Demolition - 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	lb/day										lb/day					
Hauling	0.2801	8.4269	3.7872	0.0404	1.0229	0.0159	1.0389	0.2803	0.0152	0.2956		4,501.8063	4,501.8063	0.4322		4,512.6118
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0423	0.0217	0.2351	8.9000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		88.4280	88.4280	1.9200e-003		88.4760
Total	**0.3224**	**8.4485**	**4.0224**	**0.0413**	**1.1462**	**0.0166**	**1.1628**	**0.3130**	**0.0159**	**0.3289**		**4,590.2343**	**4,590.2343**	**0.4341**		**4,601.0877**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7725	0.0000	5.7725	0.8742	0.0000	0.8742			0.0000			0.0000
Off-Road	2.0926	19.1966	19.4184	0.0388		0.8528	0.8528		0.7920	0.7920	0.0000	3,747.5996	3,747.5996	1.0464		3,773.7606
Total	**2.0926**	**19.1966**	**19.4184**	**0.0388**	**5.7725**	**0.8528**	**6.6252**	**0.8742**	**0.7920**	**1.6661**	**0.0000**	**3,747.5996**	**3,747.5996**	**1.0464**		**3,773.7606**

3.2 Demolition - 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	lb/day										lb/day					
Hauling	0.2801	8.4269	3.7872	0.0404	1.0229	0.0159	1.0389	0.2803	0.0152	0.2956		4,501.8063	4,501.8063	0.4322		4,512.6118
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0423	0.0217	0.2351	8.9000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		88.4280	88.4280	1.9200e-003		88.4760
Total	**0.3224**	**8.4485**	**4.0224**	**0.0413**	**1.1462**	**0.0166**	**1.1628**	**0.3130**	**0.0159**	**0.3289**		**4,590.2343**	**4,590.2343**	**0.4341**		**4,601.0877**

3.3 Grading - 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	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5754	6.1269	6.0534	0.0129		0.2194	0.2194		0.2019	0.2019		1,244.3513	1,244.3513	0.4025		1,254.4125
Total	**0.5754**	**6.1269**	**6.0534**	**0.0129**	**0.5303**	**0.2194**	**0.7497**	**0.0573**	**0.2019**	**0.2591**		**1,244.3513**	**1,244.3513**	**0.4025**		**1,254.4125**

3.3 Grading - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0226	0.0116	0.1254	4.7000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		47.1616	47.1616	1.0200e-003		47.1872
Total	**0.0226**	**0.0116**	**0.1254**	**4.7000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**47.1616**	**47.1616**	**1.0200e-003**		**47.1872**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.5754	6.1269	6.0534	0.0129		0.2194	0.2194		0.2019	0.2019	0.0000	1,244.3513	1,244.3513	0.4025		1,254.4125
Total	**0.5754**	**6.1269**	**6.0534**	**0.0129**	**0.2386**	**0.2194**	**0.4581**	**0.0258**	**0.2019**	**0.2277**	**0.0000**	**1,244.3513**	**1,244.3513**	**0.4025**		**1,254.4125**

3.3 Grading - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0226	0.0116	0.1254	4.7000e-004	0.0657	3.6000e-004	0.0661	0.0174	3.3000e-004	0.0178		47.1616	47.1616	1.0200e-003		47.1872
Total	**0.0226**	**0.0116**	**0.1254**	**4.7000e-004**	**0.0657**	**3.6000e-004**	**0.0661**	**0.0174**	**3.3000e-004**	**0.0178**		**47.1616**	**47.1616**	**1.0200e-003**		**47.1872**

3.4 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	lb/day										lb/day					
Off-Road	0.6858	6.3541	6.6210	0.0139		0.2713	0.2713		0.2584	0.2584		1,310.5547	1,310.5547	0.2343		1,316.4119
Total	**0.6858**	**6.3541**	**6.6210**	**0.0139**		**0.2713**	**0.2713**		**0.2584**	**0.2584**		**1,310.5547**	**1,310.5547**	**0.2343**		**1,316.4119**

3.4 Building Construction - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.8800e-003	0.2770	0.0891	9.7000e-004	0.0266	3.2000e-004	0.0270	7.6700e-003	3.1000e-004	7.9700e-003		104.8840	104.8840	7.2500e-003		105.0653
Worker	0.0285	0.0146	0.1580	6.0000e-004	0.0828	4.5000e-004	0.0833	0.0220	4.1000e-004	0.0224		59.4236	59.4236	1.2900e-003		59.4558
Total	**0.0363**	**0.2916**	**0.2471**	**1.5700e-003**	**0.1094**	**7.7000e-004**	**0.1102**	**0.0296**	**7.2000e-004**	**0.0304**		**164.3076**	**164.3076**	**8.5400e-003**		**164.5212**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6858	6.3541	6.6210	0.0139		0.2713	0.2713		0.2584	0.2584	0.0000	1,310.5547	1,310.5547	0.2343		1,316.4119
Total	**0.6858**	**6.3541**	**6.6210**	**0.0139**		**0.2713**	**0.2713**		**0.2584**	**0.2584**	**0.0000**	**1,310.5547**	**1,310.5547**	**0.2343**		**1,316.4119**

3.4 Building Construction - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.8800e-003	0.2770	0.0891	9.7000e-004	0.0266	3.2000e-004	0.0270	7.6700e-003	3.1000e-004	7.9700e-003		104.8840	104.8840	7.2500e-003		105.0653
Worker	0.0285	0.0146	0.1580	6.0000e-004	0.0828	4.5000e-004	0.0833	0.0220	4.1000e-004	0.0224		59.4236	59.4236	1.2900e-003		59.4558
Total	**0.0363**	**0.2916**	**0.2471**	**1.5700e-003**	**0.1094**	**7.7000e-004**	**0.1102**	**0.0296**	**7.2000e-004**	**0.0304**		**164.3076**	**164.3076**	**8.5400e-003**		**164.5212**

3.5 Paving - 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	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	2.7739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6891**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.5 Paving - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0423	0.0217	0.2351	8.9000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		88.4280	88.4280	1.9200e-003		88.4760
Total	**0.0423**	**0.0217**	**0.2351**	**8.9000e-004**	**0.1232**	**6.7000e-004**	**0.1239**	**0.0327**	**6.2000e-004**	**0.0333**		**88.4280**	**88.4280**	**1.9200e-003**		**88.4760**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	2.7739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.6891**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.5 Paving - 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	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0423	0.0217	0.2351	8.9000e-004	0.1232	6.7000e-004	0.1239	0.0327	6.2000e-004	0.0333		88.4280	88.4280	1.9200e-003		88.4760
Total	**0.0423**	**0.0217**	**0.2351**	**8.9000e-004**	**0.1232**	**6.7000e-004**	**0.1239**	**0.0327**	**6.2000e-004**	**0.0333**		**88.4280**	**88.4280**	**1.9200e-003**		**88.4760**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.617626	0.036451	0.176904	0.096837	0.011340	0.005282	0.018425	0.026503	0.001944	0.001632	0.005548	0.000800	0.000709

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Unmitigated	0.4088	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.8500e-003	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**		**0.1719**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1406					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.8500e-003	6.7000e-004	0.0749	1.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		0.1615	0.1615	4.2000e-004		0.1719
Total	**0.4088**	**6.7000e-004**	**0.0749**	**1.0000e-005**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**		**0.1615**	**0.1615**	**4.2000e-004**		**0.1719**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24)

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	738.00	1000sqft	16.94	738,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Annual

Project Characteristics -

Land Use -

Construction Phase - Schedule based on the assumption of 420 square yards of pavement removal per shift and 2,000 cubic yards of asphalt/concrete production per shift with two crews (AQTR C&S Engineers 2018)
Additional phases added for grading new gravel access road and installation of new MALSR

Off-road Equipment - Grading for 1,200' gravel access road

Off-road Equipment - Installing new MALSR

Off-road Equipment -

Grading -

Demolition - Includes demo debris for 82,000 SY, and 56 SY for existing MALSR
Assumes pavement density of 2.1 CY/Ton (AQTR C&S Engineers 2017)

Trips and VMT - Building trips per CalEEMod Appendix A:
0.42 worker trips per 1,000sf
0.1639 vendor trips per 1,000sf
MALSR installation area and Gravel Access Road: 24,000sf

Construction Off-road Equipment Mitigation -

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Annual

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	5.00
tblConstructionPhase	NumDays	20.00	195.00
tblConstructionPhase	NumDays	30.00	10.00
tblConstructionPhase	NumDays	20.00	16.00
tblConstructionPhase	PhaseEndDate	5/18/2018	10/20/2028
tblConstructionPhase	PhaseEndDate	1/27/2017	9/29/2028
tblConstructionPhase	PhaseEndDate	3/24/2017	10/13/2028
tblConstructionPhase	PhaseEndDate	6/15/2018	11/13/2028
tblConstructionPhase	PhaseStartDate	3/25/2017	10/16/2028
tblConstructionPhase	PhaseStartDate	1/1/2017	1/3/2028
tblConstructionPhase	PhaseStartDate	2/11/2017	10/2/2028
tblConstructionPhase	PhaseStartDate	5/19/2018	10/23/2028
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	121.00	3.93
tblTripsAndVMT	WorkerTripNumber	310.00	10.08

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					
2028	0.2691	2.8200	2.4444	8.1400e-003	1.3643	0.0899	1.4542	0.2200	0.0835	0.3035	0.0000	767.4080	767.4080	0.1381	0.0000	770.8601
Maximum	**0.2691**	**2.8200**	**2.4444**	**8.1400e-003**	**1.3643**	**0.0899**	**1.4542**	**0.2200**	**0.0835**	**0.3035**	**0.0000**	**767.4080**	**767.4080**	**0.1381**	**0.0000**	**770.8601**

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					
2028	0.2691	2.8200	2.4444	8.1400e-003	0.6750	0.0899	0.7648	0.1157	0.0835	0.1992	0.0000	767.4076	767.4076	0.1381	0.0000	770.8597
Maximum	**0.2691**	**2.8200**	**2.4444**	**8.1400e-003**	**0.6750**	**0.0899**	**0.7648**	**0.1157**	**0.0835**	**0.1992**	**0.0000**	**767.4076**	**767.4076**	**0.1381**	**0.0000**	**770.8597**

	ROG	NOx	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**	**50.53**	**0.00**	**47.40**	**47.41**	**0.00**	**34.37**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
45	**1-1-2028**	**3-31-2028**	0.9555	0.9555
46	**4-1-2028**	**6-30-2028**	0.9757	0.9757
47	**7-1-2028**	**9-30-2028**	0.9757	0.9757
		Highest	0.9757	0.9757

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	0.0740	6.0000e-005	6.7400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	3.0000e-005	0.0000	0.0140
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0740**	**6.0000e-005**	**6.7400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0132**	**0.0132**	**3.0000e-005**	**0.0000**	**0.0140**

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	0.0740	6.0000e-005	6.7400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	3.0000e-005	0.0000	0.0140
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0740**	**6.0000e-005**	**6.7400e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0132**	**0.0132**	**3.0000e-005**	**0.0000**	**0.0140**

	ROG	NOx	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

Revised: CRQ MP EIR Long Term Phase 12 (Relocation/Extension RW 6-24) - San Diego County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2028	9/29/2028	5	195	
2	Grading	Grading	10/2/2028	10/13/2028	5	10	
3	Building Construction	Building Construction	10/16/2028	10/20/2028	5	5	
4	Paving	Paving	10/23/2028	11/13/2028	5	16	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 5

Acres of Paving: 16.94

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	0	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Grading	Scrapers	0	8.00	367	0.48
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	11,416.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	10.08	3.93	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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					
Fugitive Dust					1.2507	0.0000	1.2507	0.1894	0.0000	0.1894	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2040	1.8717	1.8933	3.7900e-003		0.0831	0.0831		0.0772	0.0772	0.0000	331.4771	331.4771	0.0926	0.0000	333.7911
Total	**0.2040**	**1.8717**	**1.8933**	**3.7900e-003**	**1.2507**	**0.0831**	**1.3338**	**0.1894**	**0.0772**	**0.2666**	**0.0000**	**331.4771**	**331.4771**	**0.0926**	**0.0000**	**333.7911**

3.2 Demolition - 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	0.0269	0.8302	0.3615	3.9700e-003	0.0977	1.5400e-003	0.0992	0.0268	1.4700e-003	0.0283	0.0000	402.1576	402.1576	0.0378	0.0000	403.1021
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6200e-003	2.0800e-003	0.0230	9.0000e-005	0.0117	7.0000e-005	0.0118	3.1200e-003	6.0000e-005	3.1800e-003	0.0000	7.8996	7.8996	1.7000e-004	0.0000	7.9039
Total	**0.0305**	**0.8322**	**0.3845**	**4.0600e-003**	**0.1094**	**1.6100e-003**	**0.1110**	**0.0300**	**1.5300e-003**	**0.0315**	**0.0000**	**410.0572**	**410.0572**	**0.0380**	**0.0000**	**411.0059**

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					0.5628	0.0000	0.5628	0.0852	0.0000	0.0852	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2040	1.8717	1.8933	3.7900e-003		0.0831	0.0831		0.0772	0.0772	0.0000	331.4767	331.4767	0.0926	0.0000	333.7907
Total	**0.2040**	**1.8717**	**1.8933**	**3.7900e-003**	**0.5628**	**0.0831**	**0.6460**	**0.0852**	**0.0772**	**0.1625**	**0.0000**	**331.4767**	**331.4767**	**0.0926**	**0.0000**	**333.7907**

3.2 Demolition - 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	0.0269	0.8302	0.3615	3.9700e-003	0.0977	1.5400e-003	0.0992	0.0268	1.4700e-003	0.0283	0.0000	402.1576	402.1576	0.0378	0.0000	403.1021
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6200e-003	2.0800e-003	0.0230	9.0000e-005	0.0117	7.0000e-005	0.0118	3.1200e-003	6.0000e-005	3.1800e-003	0.0000	7.8996	7.8996	1.7000e-004	0.0000	7.9039
Total	**0.0305**	**0.8322**	**0.3845**	**4.0600e-003**	**0.1094**	**1.6100e-003**	**0.1110**	**0.0300**	**1.5300e-003**	**0.0315**	**0.0000**	**410.0572**	**410.0572**	**0.0380**	**0.0000**	**411.0059**

3.3 Grading - 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					
Fugitive Dust					2.6500e-003	0.0000	2.6500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8800e-003	0.0306	0.0303	6.0000e-005		1.1000e-003	1.1000e-003		1.0100e-003	1.0100e-003	0.0000	5.6443	5.6443	1.8300e-003	0.0000	5.6899
Total	**2.8800e-003**	**0.0306**	**0.0303**	**6.0000e-005**	**2.6500e-003**	**1.1000e-003**	**3.7500e-003**	**2.9000e-004**	**1.0100e-003**	**1.3000e-003**	**0.0000**	**5.6443**	**5.6443**	**1.8300e-003**	**0.0000**	**5.6899**

3.3 Grading - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	6.0000e-005	6.3000e-004	0.0000	3.2000e-004	0.0000	3.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2161	0.2161	0.0000	0.0000	0.2162
Total	**1.0000e-004**	**6.0000e-005**	**6.3000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2161**	**0.2161**	**0.0000**	**0.0000**	**0.2162**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1900e-003	0.0000	1.1900e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8800e-003	0.0306	0.0303	6.0000e-005		1.1000e-003	1.1000e-003		1.0100e-003	1.0100e-003	0.0000	5.6443	5.6443	1.8300e-003	0.0000	5.6899
Total	**2.8800e-003**	**0.0306**	**0.0303**	**6.0000e-005**	**1.1900e-003**	**1.1000e-003**	**2.2900e-003**	**1.3000e-004**	**1.0100e-003**	**1.1400e-003**	**0.0000**	**5.6443**	**5.6443**	**1.8300e-003**	**0.0000**	**5.6899**

3.3 Grading - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	6.0000e-005	6.3000e-004	0.0000	3.2000e-004	0.0000	3.2000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2161	0.2161	0.0000	0.0000	0.2162
Total	**1.0000e-004**	**6.0000e-005**	**6.3000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2161**	**0.2161**	**0.0000**	**0.0000**	**0.2162**

3.4 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	1.7100e-003	0.0159	0.0166	3.0000e-005		6.8000e-004	6.8000e-004		6.5000e-004	6.5000e-004	0.0000	2.9723	2.9723	5.3000e-004	0.0000	2.9856
Total	**1.7100e-003**	**0.0159**	**0.0166**	**3.0000e-005**		**6.8000e-004**	**6.8000e-004**		**6.5000e-004**	**6.5000e-004**	**0.0000**	**2.9723**	**2.9723**	**5.3000e-004**	**0.0000**	**2.9856**

3.4 Building Construction - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	7.0000e-004	2.1000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2414	0.2414	2.0000e-005	0.0000	0.2418
Worker	6.0000e-005	4.0000e-005	4.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1361	0.1361	0.0000	0.0000	0.1362
Total	**8.0000e-005**	**7.4000e-004**	**6.1000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.3775**	**0.3775**	**2.0000e-005**	**0.0000**	**0.3780**

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	1.7100e-003	0.0159	0.0166	3.0000e-005		6.8000e-004	6.8000e-004		6.5000e-004	6.5000e-004	0.0000	2.9723	2.9723	5.3000e-004	0.0000	2.9856
Total	**1.7100e-003**	**0.0159**	**0.0166**	**3.0000e-005**		**6.8000e-004**	**6.8000e-004**		**6.5000e-004**	**6.5000e-004**	**0.0000**	**2.9723**	**2.9723**	**5.3000e-004**	**0.0000**	**2.9856**

3.4 Building Construction - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	7.0000e-004	2.1000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2414	0.2414	2.0000e-005	0.0000	0.2418
Worker	6.0000e-005	4.0000e-005	4.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1361	0.1361	0.0000	0.0000	0.1362
Total	**8.0000e-005**	**7.4000e-004**	**6.1000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**2.7000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.3775**	**0.3775**	**2.0000e-005**	**0.0000**	**0.3780**

3.5 Paving - 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	7.3200e-003	0.0687	0.1166	1.8000e-004		3.3500e-003	3.3500e-003		3.0800e-003	3.0800e-003	0.0000	16.0154	16.0154	5.1800e-003	0.0000	16.1449
Paving	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0295**	**0.0687**	**0.1166**	**1.8000e-004**		**3.3500e-003**	**3.3500e-003**		**3.0800e-003**	**3.0800e-003**	**0.0000**	**16.0154**	**16.0154**	**5.1800e-003**	**0.0000**	**16.1449**

3.5 Paving - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	1.8900e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.6000e-004	0.0000	2.6000e-004	0.0000	0.6482	0.6482	1.0000e-005	0.0000	0.6485
Total	**3.0000e-004**	**1.7000e-004**	**1.8900e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**0.6482**	**0.6482**	**1.0000e-005**	**0.0000**	**0.6485**

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	7.3200e-003	0.0687	0.1166	1.8000e-004		3.3500e-003	3.3500e-003		3.0800e-003	3.0800e-003	0.0000	16.0154	16.0154	5.1800e-003	0.0000	16.1449
Paving	0.0222					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0295**	**0.0687**	**0.1166**	**1.8000e-004**		**3.3500e-003**	**3.3500e-003**		**3.0800e-003**	**3.0800e-003**	**0.0000**	**16.0154**	**16.0154**	**5.1800e-003**	**0.0000**	**16.1449**

3.5 Paving - 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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	1.7000e-004	1.8900e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.6000e-004	0.0000	2.6000e-004	0.0000	0.6482	0.6482	1.0000e-005	0.0000	0.6485
Total	**3.0000e-004**	**1.7000e-004**	**1.8900e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.6000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**0.6482**	**0.6482**	**1.0000e-005**	**0.0000**	**0.6485**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.617626	0.036451	0.176904	0.096837	0.011340	0.005282	0.018425	0.026503	0.001944	0.001632	0.005548	0.000800	0.000709

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	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	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		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	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			
Other Asphalt Surfaces	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	0.0740	6.0000e-005	6.7400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	3.0000e-005	0.0000	0.0140
Unmitigated	0.0740	6.0000e-005	6.7400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	3.0000e-005	0.0000	0.0140

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	0.0257					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0477					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.2000e-004	6.0000e-005	6.7400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	3.0000e-005	0.0000	0.0140
Total	**0.0740**	**6.0000e-005**	**6.7400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0132**	**0.0132**	**3.0000e-005**	**0.0000**	**0.0140**

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	0.0257					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0477					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.2000e-004	6.0000e-005	6.7400e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0132	0.0132	3.0000e-005	0.0000	0.0140
Total	**0.0740**	**6.0000e-005**	**6.7400e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0132**	**0.0132**	**3.0000e-005**	**0.0000**	**0.0140**

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			
Other Asphalt Surfaces	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			
Other Asphalt Surfaces	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			
Other Asphalt Surfaces	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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation