



Air Quality and Climate Change
Technical Report
Broad Beach Restoration Project

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Contents

		Page
1	Introduction	1
1.1	Project Description	1
1.2	Report Organization	2
2	Significance Thresholds	3
2.1	Air Quality	3
2.2	Greenhouse Gases	3
3	Emission Estimation Methods	5
3.1	Construction Emission Estimation	6
3.1.1	Off-Road Sources	6
3.1.2	On-Road Sources	6
3.1.3	Vegetation Change	7
3.2	Operational Emission Estimation	7
3.2.1	Off-road Sources	7
3.2.2	On-road Sources	8
4	Mass Emissions Results	9
4.1	Air Quality	9
4.1.1	Construction	9
4.1.2	Operations	10
4.2	Greenhouse Gases	11
4.2.1	Construction	11
4.2.2	Operations	11
5	Health Risk Assessment	12

List of Tables

Table 1:	SCAQMD Air Quality Significance Thresholds
Table 2:	Construction Schedule Assumptions
Table 3:	On-Site Equipment Mix Assumptions
Table 4:	Sand Import/Export Assumptions
Table 5:	Trips and Trip Length Assumptions
Table 6a:	Summary of On-Site Construction Criteria Air Pollutant Emissions (Peak Day, Local)
Table 6b:	Summary of Total Construction Criteria Air Pollutant Emissions (Peak Day, Regional)
Table 7:	Summary of Operational Criteria Air Pollutant Emissions
Table 8:	Annual GHG Construction Emissions
Table 9:	Vegetation Change Evaluation
Table 10:	Summary of GHG Emissions
Table 11:	On-Site Toxic Air Contaminant Emissions
Table 12a:	Rule 1401 Tier 2 Health Risk Assessment of On-Site Emissions (Cancer Risk)
Table 12b:	Rule 1401 Tier 2 Health Risk Assessment of On-Site Emissions (Chronic Risk)

Contents (continued)

List of Appendices

Appendix A: CalEEMod™ Output Results

List of Acronyms and Abbreviations

AAQS:	ambient air quality standards
APTR:	Analysis of Impacts to Public Trust Resources and Values
BBGHAD:	Broad Beach Geologic Hazard Abatement District
CalEEMod™:	California Emission Estimator Model
CARB:	California Air Resources Board
CCC:	California Coastal Commission
CDP:	Coastal Development Permit
CEQA:	California Environmental Quality Act
CO:	Carbon Monoxide
CO ₂ :	Carbon dioxide
DPM:	Diesel particulate matter
EMFAC:	Emission Factor model
ENVIRON:	ENVIRON International Corporation
GHG:	greenhouse gas
HIC:	chronic hazard index
HRA:	Health risk assessment
LST:	Localized significance thresholds
MICR:	Maximum Individual Cancer Risk
MTCO ₂ e/yr:	Metric tonnes CO ₂ equivalents
NO _x :	oxides of nitrogen
OFFROAD:	Offroad Emissions Inventory Program model (OFFROAD)
PM ₁₀ :	coarse particulate matter
PM _{2.5} :	fine particulate matter
SCAB:	South Coast Air Basin
SCAQMD:	South Coast Air Quality Management District
SLC:	State Lands Commission
SO ₂ :	sulfur dioxide
USEPA:	United States Environmental Protection Agency
VMT:	vehicle miles traveled
VOCs:	volatile organic compounds

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1 Introduction

This air quality and climate change technical report evaluates the criteria air pollutants and greenhouse gases (GHGs) associated with the dune, beach berm, and beach face restoration of Broad Beach (Project), which would cover up to 42 acres of the coastline in Malibu, California.

This analysis includes the development of criteria air pollutant and GHG emission inventories used to evaluate air quality impacts in support of the State Lands Commission's (SLC) Analysis of Impacts to Public Trust Resources and Values for the Broad Beach Restoration Project (APTR) and the California Coastal Commission's (CCC) Coastal Development Permit (CDP) process. This report documents the methodologies used by ENVIRON International Corporation (ENVIRON) in developing the criteria pollutant and GHG emission inventories, calculating the construction and operational related emissions for the proposed Broad Beach Restoration Project and comparing them to the South Coast Air Quality Management District (SCAQMD) California Environmental Quality Act (CEQA) thresholds as a basis for evaluating the air quality and GHG impacts. This analysis also incorporates direction from the SLC's May 2013 letter and the CCC's July 2013 letter to the project applicant, the Broad Beach Geologic Hazard Abatement District (BBGHAD).

Criteria pollutants are those chemicals that have ambient air quality standards (AAQS), and their precursors, which include carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), sulfur dioxide (SO₂), coarse particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}). This report documents the methodologies used by ENVIRON to evaluate the Project for the APTR. There are other state and federal criteria pollutants such as lead (state and federal) and hydrogen sulfide (state, only) that are not relevant to this analysis.

1.1 Project Description

Development along Broad Beach began in the 1930s, consisting of small beach cottages. Most lots were developed by the late 1980s. During this period, the beach remained considerably wider than it is today, especially through the early 1970s. The width of Broad Beach reached a peak in 1970 at a yearly average of 60 feet landward of the mean high tide line (MHTL); however, the beach has been receding since. Between 1974 and 2009, approximately 600,000 cubic yards of sand were lost at Broad Beach, moving the shoreline inland approximately 65 feet. The majority of the sand moved east to nourish Zuma Beach and other locations down coast. The sand budget turned negative around 1974 and from 2004-2009 the sand loss rate has accelerated to approximately 35,000 cubic yards per year (Everts Coastal 2009).

The SLC is considering the BBGHAD's application for the proposed Project, which would include beach nourishment, dune restoration, at least 20 years of annual sand backpassing, and one major future renourishment event in roughly 10 years.

The proposed beach and dune restoration Project site would cover up to 42 acres and is located within the Laguna Point to Latigo Point Area of Special Biological Significance (ASBS), located

in both Los Angeles and Ventura counties. It is the largest of the mainland ASBSs in southern California, with 24 miles of coastline.

The construction phase of the proposed Project includes the deposition of 600,000 cubic yards of sand onto Broad Beach, of which 500,000 cubic yards will be used for nourishment of the beach and the remaining 100,000 cubic yards will be used for dune restoration/construction. All of the sand will be sourced from inland private local quarries in the Moorpark/Fillmore area of the Conejo Valley approximately 40 to 56 miles away by truck. The 600,000 cubic yards of sand would be trucked to the Project site and would require approximately 43,000 truck trips.

The operational phase of the proposed Project comprises of the backpassing and renourishment events. Backpassing is anticipated to widen the west end beach (based on historic erosion patterns) and is anticipated to occur in the fall/winter season on an annual basis for 20 years. The initial sand volume for backpassing is between 25,000 and 50,000 cubic yards and will be moved from the east end of the beach to the west end. Renourishment will be similar to the original event and is anticipated to involve placement of an additional 450,000 cubic yards of sand on the beach in approximately 10 years. The dunes are assumed to not need renourishment. The actual timing for when renourishment will occur is unknown and would be determined by monitoring and be subject to the BBGHAD's assessment stream.

1.2 Report Organization

ENVIRON has prepared a criteria pollutant emission inventory and a GHG emission inventory for both construction and operation. The purpose of this evaluation is to calculate emissions and to compare them to the SCAQMD CEQA significance thresholds, including Localized Significance Thresholds (LSTs).

The remaining sections of this report describe the methods used to conduct this analysis. Following this introduction, Section 2 describes the significance thresholds as set forth by SCAQMD. Section 3 describes the emission estimation methods for determining emissions from the construction and operational phase of the proposed Project. Section 4 describes the emission inventory for construction and operational emissions and compares them to the relevant significance thresholds. Section 5 outlines the health risk assessment and results.

2 Significance Thresholds

The SCAQMD has established significance thresholds¹ to assess the impacts of project-related construction and operational emissions on regional ambient air quality. Although the APTR is not a CEQA document, we have relied upon the CEQA significance thresholds for comparison purposes.

2.1 Air Quality

Table 1 shows the mass daily thresholds for construction as well as operations as adopted by SCAQMD for criteria pollutant emissions. The analysis summarized in this report estimates project-related construction (nourishment phase, including dune construction and other related activities such as planting, fencing, etc.) and operational (backpassing and renourishment phases) mass emissions and compares the emissions to these mass daily significance thresholds.

2.2 Greenhouse Gases

The SCAQMD has not formerly adopted GHG significance thresholds for projects such as that contemplated by the subject APTR and CDP, but has convened a GHG CEQA Significance Threshold Working Group (Working Group) to provide guidance to local lead agencies on determining significance for GHG emissions in its CEQA documents. In its September 28, 2010 meeting, the SCAQMD proposed a tiered approach that could be applied to commercial projects.² The tiers are as follows:

- **Tier 1:** Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2;
- **Tier 2:** Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan (often called a Climate Action Plan) that has gone through public hearings and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3;
- **Tier 3:** For residential and commercial projects, if projects are less than 3,000 metric tonnes/year of CO₂e, the project is presumed to be less than significant for GHGs. If the project exceeds 3,000 metric tonnes of CO₂ equivalent (MTCO₂e/yr), move to Tier 4. More specific screening thresholds were also provided, which include 1,400 metric tonnes/year of CO₂e for commercial projects. These thresholds were based on a review of the Office of Planning and Research database which included 711 CEQA projects using a 90% capture approach;
- **Tier 4:** The proposed performance standards include three options:
 - Percent Emission Reduction Target (no further recommendation)
 - Early Implementation of Applicable AB32 Scoping Plan Measures (incorporated into option 3)

¹ SCAQMD, 2011. Air Quality Significance Thresholds. March. Available at: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>, Accessed: September 2013.

² SCAQMD 2010. CEQA Significance Thresholds Working Group Meeting #15. September 28. Available at: <http://www.aqmd.gov/ceqa/handbook/GHG/2010/sept28mtg/sept29.html>. Accessed: February, 2013.

- SCAQMD Efficiency Target
- For option 3, there are targets for 2020 and 2035. The target for 2020 is proposed to be:
 - 4.8 MT/year CO₂e per service population for project level threshold (land use employment only)
- 6.6 MT/year CO₂e per service population for plan level threshold
- The target for 2035 is proposed to be:
 - 3.0 MT/year CO₂e per service population for project level threshold
 - 4.1 MT/year CO₂e per service population for plan level threshold
 - Incorporate SB 375 regional targets.
- **Tier 5:** Off-site mitigation for life of project (30 years), if this threshold is to be used, GHG emissions must be mitigated to less than the Tier 3 screening significance threshold. SCAQMD clarified that offsets should have a 30 year project life, should be Real, Quantifiable, Verifiable, and Surplus and will be considered in the following prioritized manner:
 - Project design feature/onsite reduction measures
 - Offsite within neighborhood
 - Offsite within district
 - Offsite within state
 - Offsite out of state
 - Substitution allowed via enforceable commitment (e.g. when an offset project ends prematurely).

If the proposed Project cannot meet any of the Tiers, it is presumed to be significant for GHG emissions. For this analysis, the Project GHG emissions inventory is compared against the proposed Tier 4 percent emission reduction target.

In December 2008, SCAQMD adopted interim CEQA GHG significance thresholds for projects on which it is the lead agency. The threshold adopted by the agency for industrial projects was 10,000 MTCO₂e/yr. This threshold was based largely on natural gas consumption GHG emissions at industrial facilities. For purposes of this analysis, this report will use the only threshold adopted by SCAQMD, which is the 10,000 MTCO₂e/yr since no other proposed threshold would apply.

3 Emission Estimation Methods

This section describes the methodology used to develop the Air Quality and GHG emission inventories associated with the proposed Project, which include: construction emissions and operational emissions. GHG emissions include sequestration of carbon dioxide equivalents (CO₂e) from vegetation. Legislation and rules regarding climate change, as well as the scientific understanding of the extent to which different activities emit GHGs, continue to evolve. As such, the inventories in this report are a reflection of the guidance and knowledge currently available.

ENVIRON utilized the California Emission Estimator Model version 2013.2.1 (CalEEMod™)³ to assist in quantifying the criteria pollutant and GHG emissions in the inventories presented in this report for the proposed Project. CalEEMod™ is a statewide program designed to calculate both criteria and GHG emissions from development projects in California. This model was developed under the auspices of the SCAQMD and received input from other California air districts and is currently supported by several lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod™ utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site specific information is not available. These models and default estimates use sources such as the United States Environmental Protection Agency (USEPA) AP-42 emission factors, California Air Resources Board's (CARB's) on-road and off-road equipment emission models such as the Emission FACtor model (EMFAC) and the Offroad Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle.

CalEEMod™ is based upon CARB-approved Off-Road and On-Road Mobile-Source Emission Factor models (OFFROAD and EMFAC, respectively), and is designed to estimate construction and operational emissions for land use development projects and allows for the input of project specific information. OFFROAD is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). EMFAC is an emissions factor model used to calculate emissions rates from on-road vehicles (e.g. passenger vehicles, haul trucks). The off-road diesel emission factors used by CalEEMod™ are based on the CARB OFFROAD2011 program.

ENVIRON used CalEEMod™ defaults for a site located in the portion of LA County within the South Coast Air Basin (SCAB) (referred to in CalEEMod™ as LA South Coast County) in the model runs unless otherwise noted in the methodology descriptions below. Details regarding the specific methodologies used by CalEEMod™ can be found in the CalEEMod™ User's Guide and associated appendices. The CalEEMod™ output files are provided for reference in Appendix A to this report. Because the annual backpassing and one-time renourishment events are more similar to construction activities, the operational emissions are represented in CalEEMod™ as "construction". Separate CalEEMod™ model runs were performed to adequately represent the different activities that may occur during construction and operations. The CalEEMod™ run for the construction phase assumes the completion (i.e., buildout) in 2013-2014. The CalEEMod™ run for the annual backpassing events of the operational phase

³ California Emissions Estimator Model. Available at: <http://caleemod.com/> Accessed: October 2013

conservatively assumes the year of 2014 and the CalEEMod™ run for the one-time renourishment event of the operational phase assumes the buildout years of 2023-2024. Since emission factors are expected to decrease over time as technology improves, assuming 2014 for the backpassing events will conservatively estimate the potential emissions.

3.1 Construction Emission Estimation

Construction-related emissions of VOCs, NO_x, CO, SO₂, particulate matter (PM) of aerodynamic radius less than 10 micrometers (PM₁₀) or less than 2.5 micrometers (PM_{2.5}), and GHGs for the construction phase were modeled and assessed using CalEEMod™. The CalEEMod™ output can be found in Appendix A. Project specific onsite equipment lists were assumed for the various construction phases: nourishment, dune construction, and planting, fencing, signage, and irrigation. The approximate construction schedule and the amount of material imported were based on Project specific estimates. The construction schedule, equipment lists, and material hauling data used to estimate construction-related emissions are shown in Tables 2 through 4, respectively. On-road vehicle criteria pollutant and GHG emissions were calculated based on the number of worker, vendor, and hauling trips and associated trip lengths (used to calculate vehicle miles traveled [VMT]) and are presented in Table 5.

3.1.1 Off-Road Sources

Sources for off-road construction emissions include off-road equipment and fugitive dust. Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod™ assumes all of the equipment operates on diesel fuel. Table 3 lists the assumed off-road equipment types for this Project. The off-road diesel emission factors used by CalEEMod™ are based on the CARB OFFROAD2011 program. Table 6a summarizes the maximum daily construction criteria pollutant emissions from off-road sources in pounds per day based on the results from CalEEMod™. Table 8 shows the off-road construction GHG emissions.

3.1.2 On-Road Sources

Sources for on-road construction emissions include on-road equipment and fugitive dust from worker, vendor, and hauling trips. The number of one-way worker trips was assumed to be twice the number of construction workers. The number of one-way vendor trips was assumed to be twice the numbers of fuel trucks, service trucks, delivery trucks, and pick-up trucks that were assumed for each phase of construction.⁴ Hauling trips were calculated based on the amount of sand imported during each phase and assuming 14-cubic yard hauling trucks are used to haul the sand. The average worker trip length is estimated as the farthest distance measured from the Project site to outside the city of Malibu boundary. The vendor trip length is the default value from CalEEMod™. Based on the October 2013 traffic memorandum, the maximum hauling trip

⁴ The number of one-way vendor trips is assumed to be twice the number of fuel trucks, service trucks, delivery trucks, and pick-up trucks.

For nourishment, there are 1 fuel truck, 1 service truck, 20 delivery trucks, and 2 pick-up trucks.

There may be vendor trips during dune construction; however, on average, it is expected to be minimal.

For planting, fencing, signage, and irrigation, there are 20 delivery trucks used in the analysis.

length is 56 miles each way.⁵ The hauling truck trip length was revised to 56 miles after the CalEEMod™ runs had been executed using the original hauling distance of 45 miles (as specified in the September 2013 project description⁶). Because emissions are a linear function of vehicle miles traveled, hauling emissions from the CalEEMod™ output files were scaled by multiplying by a factor of 56/45.

Table 6b summarizes the total construction criteria pollutant emissions by year and Table 8 shows the on-road and off-road construction GHG emissions. The construction air quality results are discussed in more detail in Section 4.1 and the GHG results are discussed in more detail in Section 4.2.

3.1.3 Vegetation Change

The amount of GHGs sequestered as a result of changes in the amount of vegetation at the Project site is summarized in Table 9. Criteria pollutant emissions are not affected by the vegetation change. Based on information estimated for the Project, approximately one acre of non-native vegetation will be removed and 3.7 acres of native plant species will be added to the Project site. The native species will include sand verbena, beach bur, beach saltbrush, beach morning glory, beach evening primrose, salt grass, beach strawberry, California sagebrush, California croton, beach spectacle pod, California goldenbrush, coast buckwheat, and chamisso bush lupine, which are approximated as “Grassland” vegetation type in CalEEMod™.

3.2 Operational Emission Estimation

The operation phase of the Project consists of backpassing and renourishment events. Backpassing will occur on an annual basis over 20 years while renourishment is a one-time event. Therefore, the two activities have separate CalEEMod™ runs. The criteria air pollutant operational mass emissions of VOCs, NO_x, CO, SO₂, PM₁₀, PM_{2.5}, and GHGs were modeled and assessed using CalEEMod™. The CalEEMod™ outputs can be found in Appendix A. The source categories considered include off-road and on-road sources. Because there will be no buildings or paving activities expected as part of this proposed Project, typical operational sources such as energy use, architectural coatings, and paving are not included. For the GHG analysis, there is also no estimate for waste generation and disposal or water use and disposal since there are no operations expected to lead to such activities.⁷ The assumptions and calculation methodologies for each of these source categories are presented in the following sections.

3.2.1 Off-road Sources

Similar to the construction activities, off-road operational emissions come from the off-road equipment. Since the majority of the off-road operational equipment used for these operational activities are diesel fueled, CalEEMod™ assumes all of the equipment operates on diesel fuel. The off-road diesel emission factors used by CalEEMod™ are based on the CARB

⁵ Linscott, Law & Greenspan, Engineers, Traffic and Parking Assessment for the Broad Beach Restoration Project. October 10, 2013.

⁶ Broad Beach Restoration Project: Project Description. September 2013.

⁷ The model can be changed and reevaluated if initial assumptions change in final project configuration, such as water use for dust suppression, etc.

OFFROAD2011 program. Table 7 summarizes the criteria pollutant emissions and Table 8 summarizes the annual GHG construction emissions due to off-road and on-road sources.

3.2.2 On-road Sources

Sources for on-road operational emissions include on-road equipment and fugitive dust from worker, vendor, and hauling trips. The number of worker, vendor and hauling trips and associated vehicle trip lengths as shown in Table 5 were used to determine the emissions associated with on-road vehicle use during operations. The number of one-way worker trips was assumed to be twice the number of construction workers. The number of one-way vendor trips was assumed to be twice the number of fuel trucks, service trucks, delivery trucks, pick-up trucks, and supervisor vehicles that were assumed for each phase of operation.⁸ Hauling trips were calculated based on the amount of sand imported during each phase and assuming 14-cubic yard hauling trucks are used to haul the sand. The average worker trip length is estimated to be the farthest distance measured from the Project site to outside the city of Malibu boundary. The vendor trip length is the default value from CalEEMod™. Based on the October 2013 traffic memorandum, the maximum hauling trip length is 56 miles each way.⁹ The hauling truck trip length was revised to 56 miles after the CalEEMod™ runs had been executed using the original hauling distance of 45 miles (as specified in the September 2013 project description¹⁰). Because emissions are a linear function of vehicle miles travelled, hauling emissions from the CalEEMod™ output files were scaled by multiplying by a factor of 56/45.

Table 7 summarizes the total operational criteria pollutant emissions and Table 10 summarizes the annual operational GHG emissions for each phase.

⁸ The number of one-way vendor trips is assumed to be twice the number of fuel trucks, service trucks, delivery trucks, pick-up trucks, and supervisor vehicles.

For renourishment, there are 1 fuel truck, 1 service truck, 20 delivery trucks, and 2 pick-up trucks.

For backpassing, there is 1 supervisor vehicle.

⁹ Linscott, Law & Greenspan, Engineers, *Traffic and Parking Assessment for the Broad Beach Restoration Project*. October 10, 2013.

¹⁰ Broad Beach Restoration Project: Project Description. September 2013.

4 Mass Emissions Results

4.1 Air Quality

4.1.1 Construction

The maximum daily criteria pollutant emissions estimated due to construction of the proposed Project are summarized in Tables 6a and 6b. These emissions were estimated using the methodology as described in Section 3 above. The emissions reported are for on-site (Table 6a) and total construction emissions (Table 6b), including on-road and off-road mobile sources. For on-site emissions, the estimated emissions include sources such as fugitive dust and off-road equipment. The estimated emissions show that the maximum on-site daily emissions for construction are less than the SCAQMD localized significance thresholds (LSTs) for CO, PM₁₀, and PM_{2.5}. The daily emissions of the proposed Project for NO_x are greater than the LST. There are no LSTs for VOC or SO₂. The analysis conservatively assumes that the CalEEMod™ default equipment mix will be used. If higher Tier equipment is available and it is determined it is feasible to use as mitigation measures, the emissions will likely be lower than that estimated here.

The maximum total daily criteria pollutant emissions estimated due to construction of the proposed Project are summarized in Table 6b. The emission sources include on-road trucks, off-road construction equipment, and fugitive dust from on-site and offsite activities. The estimated emissions are less than the SCAQMD regional mass daily significance thresholds for CO, SO₂, PM₁₀, and PM_{2.5} but above the significance thresholds for VOC and NO_x.

The following mitigation measures will be implemented in order to minimize the criteria pollutant emissions to the maximum extent feasible.

- **AMM AQ-1a: Fugitive Dust Control.** The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD mitigations for fugitive dust mitigation, according to Rule 403. The Plan shall also address fugitive dust measure impacts to native habitats. To the extent required by Rule 403, fugitive dust mitigation measures in the plan should include the following:
 - Require minimum soil moisture of 12 percent for earthmoving (i.e., sand distribution during nourishment, dune restoration, sand backpassing, and/or renourishment), by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe.
 - To the extent required by law or applicable regulations, limit on-site vehicle speeds on unpaved roads to 15 miles per hour (mph) with driver notification of speed limits.
 - To the extent required by law or applicable regulations, all trucks hauling sand and other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.
 - Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 mph.
 - Appoint a construction relations officer to act as a community liaison concerning on-site construction issues, such as dust generation.

- **AMM AQ-1b: NO_x/PM Control.** The Applicant shall implement a NO_x reduction program including the following, or equivalent, measures:
 - All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications.
 - Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators.
 - All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 4 requirements. If the Lead Agency determines that a Tier 4 fleet or portion thereof cannot be obtained, the Lead Agency shall require the use of construction equipment that meets Tier 3 emissions requirements or utilize other CARB-verified emission control technologies to achieve the same level of emission reduction.
 - Limit on-site truck idling to less than 5 minutes.
 - A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.
- **AMM AQ-3a: Diesel Particulate Emission Controls.** The Applicant shall install CARB-verified Level 3 diesel catalysts on all diesel-powered off-road equipment or utilize diesel engines that have an equivalent PM emission rate (Tier 4 engines). The current list of CARB-verified Level 3 diesel catalysts is available from <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>. Catalysts or engine certifications shall demonstrate achieving 85 percent reduction for diesel PM.

Of the mitigation measures described above, the following measures were quantified in the analysis:

- Require minimum soil moisture of 12 percent for earthmoving (i.e., sand distribution during nourishment, dune restoration, sand backpassing, and/or renourishment), by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe. (AMM AQ-1a)
- Limit on-site vehicle speeds on unpaved roads to 15 miles per hour (mph) and posting of speed limits. (AMM AQ-1a)
- Install CARB-verified Level 3 diesel catalysts on all diesel-powered off-road equipment. (AMM AQ-3a)

The other mitigation measures described above were not quantified in this analysis. If such mitigation measures had been quantified, the emissions would be lower than those reported in the tables.

4.1.2 Operations

The maximum daily criteria pollutant emissions estimated due to operation of the proposed Project are summarized in Table 7. These emissions were estimated using the methodology as described in Section 3 above. The estimated emissions include on-site emissions from off-road

equipment and fugitive dust, and offsite emissions from on-road sources. The estimated emissions show that the maximum daily emissions for operations are greater than the SCAQMD mass daily significance threshold for NO_x . Estimated emissions for the other pollutants are below the significance thresholds.

The mitigation measures listed above that were quantified for construction were also quantified for the operational emissions. If the other mitigation measures in AMM AQ-1a and AMM AQ-1b had been quantified, the emissions would be lower than those reported in the tables. As mentioned in Section 4.1.1 above, no additional mitigation measures were identified as being feasible or applicable to the proposed Project.

4.2 Greenhouse Gases

4.2.1 Construction

Table 8 shows the total one-time GHG emissions for construction, including off-road equipment, worker commuting, vendor trips, and hauling for the proposed Project. The total estimated one-time construction emissions are 4,004 metric tonnes (MT) of CO_2e , which is equal to 133 MT/year amortized over 30 years.

The native vegetation that will be planted in the construction phase will result in 0.4 MT/year of sequestered carbon dioxide (CO_2) amortized over 30 years.

4.2.2 Operations

Table 10 shows the total GHG emissions from all source categories for the proposed Project. Annual backpassing emissions total 60 MT $\text{CO}_2\text{e}/\text{year}$ while renourishment GHG emissions were estimated to be 96 MT/yr CO_2e when amortized over 30 years. Added with the 30-year amortized construction and vegetation emissions results in total GHG emissions of 290 MT/yr CO_2e for both construction and operations. The estimated GHG emissions are less than the SCAQMD adopted GHG threshold of 10,000 $\text{MTCO}_2\text{e}/\text{yr}$.

5 Health Risk Assessment

A health risk assessment (HRA) in accordance with SCAQMD Rule 1401 procedures was performed to analyze the risk of the estimated diesel particulate matter (DPM) emissions from on-site construction activities. DPM has carcinogenic and chronic health risks, but no acute health effects. As shown in Table 11, the total DPM emissions from on-site construction activities are 273 pounds per year (lbs/yr). Because the analysis for calculating cancer risk assumes exposure over 70 years, the total DPM emissions used in the cancer risk calculation are amortized over 70 years, which is equal to 3.90 lbs/yr. The maximum individual cancer risk (MICR) and chronic health index (HIC) were calculated using parameters found in the tables in Rule 1401 Attachment L.¹¹ Because construction activities are expected to cover up to 5 acres (approximately 217,800 square feet) at any given time, the dispersion factor (X/Q) for an area greater than 30,000 square feet was used for the risk calculations. To be conservative, the MICR and HIC were calculated for a nearest receptor distance of 50 meters (estimated distance from the center of the hypothetical volume source¹²). As shown in Table 12a, the calculated MICR is below the SCAQMD CEQA significance threshold of 10 in a million. The only target organ for chronic health effects from DPM is the respiratory system. As shown in Table 12b, the calculated HIC is below the SCAQMD CEQA threshold of 1.0. If the higher Tier equipment is used, the estimated emissions and associated health risk would be lower than that estimated here.

¹¹ South Coast Air Quality Management District, *Permit Application Package "L": For Use in Conjunction with the Risk Assessment Procedures for Rules 1401 and 212*, Version 7.0. Revised December 7, 2012. Available online at: <http://www.aqmd.gov/prdas/pdf/1401AttL7Dec2012.pdf> [accessed October 2013].

¹² South Coast Air Quality Management District, *Risk Assessment Procedures for Rules 1401 and 212*, Version 7.0, p. 13. July 1, 2005. Available online at: <http://www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf> [accessed October 2013].

Tables

Table 1. SCAQMD Air Quality Significance Thresholds¹

Mass Daily Thresholds (lbs/day)		
Pollutant	Construction	Operation
NO _x	100	55
VOC	75	55
PM ₁₀	150	150
PM _{2.5}	55	55
SO _x	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminant (TAC) Thresholds		
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million	
Ambient Air Quality Standards for Criteria Pollutants		
NO ₂ 1-hour Average Annual Arithmetic Mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM ₁₀ 24-hour Average Annual Average	10.4 µg/m ³ (construction); 2.5 µg/m ³ (operation) 1.0 µg/m ³	
PM _{2.5} 24-hour Average	10.4 µg/m ³ (construction); 2.5 µg/m ³ (operation)	
SO ₂ 1-hour Average 24-hour Average	0.25 ppm (state); 0.075 ppm (federal – 99 th percentile) 0.04 ppm (state)	
Sulfate 24-hour Average	25 µg/m ³ (state)	
CO 1-hour Average 8-hour Average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month Average Quarterly Average	1.5 µg/m ³ (state) 0.15 µg/m ³ (federal) 1.5 µg/m ³ (federal)	

Abbreviations:

- µg/m³ - micrograms per cubic meter
- CO - carbon monoxide
- lbs - pounds
- MT - metric tonnes
- NO_x - nitrogen oxides
- PM₁₀ - particulate matter of 10 microns in diameter or smaller
- PM_{2.5} - particulate matter of 2.5 microns in diameter or smaller
- ppm - parts per million
- SCAQMD - South Coast Air Quality Management District
- SO₂ - sulfur dioxide
- VOC - volatile organic compound

Reference:

¹ SCAQMD Significance Thresholds Revision March 2011. Available at: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>. Accessed: September 2013.

Table 2. Construction Schedule Assumptions¹

Source Type	Phase	Construction Phase	Number of Work Days ²	Start Date	End Date
Construction	Nourishment	Grading	130	9/15/2013	3/15/2014
	Dune Construction	Grading	22	3/15/2014	4/15/2014
	Planting, Fencing, Signage, Irrigation	Site Preparation	23	4/15/2014	5/15/2014
Operation	Backpassing ³	Grading	15	9/15/2014	10/3/2014
	Renourishment ⁴	Grading	125	9/15/2023	3/7/2024

Notes:

¹ The construction schedule is based on the September 2013 Broad Beach Restoration Project: Project Description.

² Construction activity is assumed to occur 5 days/week.

³ Backpassing will occur on an annual basis for 20 years.

⁴ Renourishment is expected to occur once approximately 10 years after the initial nourishment event. The actual timing for when renourishment would occur is unknown and would be determined via monitoring.

Table 3. On-Site Equipment Mix Assumptions

Source Type	Phase ¹	Construction Phase	Equipment Type ²	# Unit	Equipment Horsepower ³	Load Factor ³	Usage Hours ⁴ (per day)
Construction	Nourishment	Grading	Generators	2	84	0.74	11
			Lighting	2	87	0.34	11
			Grizzly (hopper/conveyor)	3	167	0.40	11
			Excavator	1	162	0.38	11
			D-9 Bulldozer	2	255	0.40	11
			Front-end loader	2	97	0.37	11
			Scraper	2	361	0.48	11
			Off-road 40-ton dump truck	7	400	0.38	11
	Dune Construction	Grading	Backhoe	2	97	0.37	11
			Bobcat	4	64	0.37	11
Operation	Backpassing	Grading	Bulldozer	1	255	0.40	12
			Scraper	3	361	0.48	12
	Renourishment ⁵	Grading	Generators	2	84	0.74	11
			Lighting	2	87	0.34	11
			Grizzly (hopper/conveyor)	3	167	0.40	11
			Excavator	1	162	0.38	11
			D-9 Bulldozer	2	255	0.40	11
			Front-end loader	2	97	0.37	11
			Scraper	2	361	0.48	11
			Off-road 40-ton dump truck	7	400	0.38	11

Notes:

¹ There is no on-site equipment for planting, fencing, signage, and irrigation because those activities are expected to be done by hand.

² The equipment mix is based on the September 2013 Broad Beach Restoration Project: Project Description.

³ Equipment ratings and load factors are CalEEMod defaults.

⁴ Daytime construction hours are 7AM - 6PM except for backpassing events, where the equipment would typically operate on a 12-hour basis between 7AM – 7PM.

⁵ The renourishment equipment mix is assumed to be the same as the nourishment equipment mix.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel

Table 4. Sand Import/Export Assumptions

Source Type	Phase	Construction Phase	Grading - Sand Import ¹	Grading - Sand Export
			(cubic yards)	(cubic yards)
Construction	Nourishment	Grading	500,000	0
	Dune Construction	Grading	100,000	0
	Planting, Fencing, Signage, Irrigation	Site Preparation	0	0
Operation	Backpassing	Grading	0	0
	Renourishment	Grading	450,000	0

Notes:

¹ The primary sand sources for initial construction and renourishment are inland quarries. Sand for backpassing would come from the wide reach of Broad Beach.

² The sand import/export assumptions are based on the September 2013 Broad Beach Restoration Project: Project Description.

Table 5. Trips and Trip Length Assumptions

Source Type	Phase	Construction Phase	# Trips Worker ¹ (per day)	# Trips Vendor ² (per day)	Total # Trips Hauling ³	Trip Length Worker ⁴	Trip Length Vendor ⁵	Trip Length Hauling ⁶
						(miles)	(miles)	(miles)
Construction	Nourishment	Grading	24	48	71,500	16.9	6.9	56
	Dune Construction	Grading	24	0	14,300	16.9	6.9	56
	Planting, Fencing, Signage, Irrigation	Site Preparation	24	40	0	16.9	6.9	--
Operation	Backpassing	Grading	10	2	0	16.9	6.9	--
	Renourishment	Grading	24	48	64,300	16.9	6.9	56

Notes:

¹ The number of one-way worker trips is assumed to be twice the number of workers.

² The number of one-way vendor trips is assumed to be twice the number of fuel trucks, service trucks, delivery trucks, pick-up trucks, and supervisor vehicles.

For nourishment and renourishment, there is 1 fuel truck, 1 service truck, 20 delivery trucks, and 2 pick-up trucks.

There may be vendor trips during dune construction; however, on average, it is expected to be minimal.

For planting, fencing, signage, and irrigation, there are 20 delivery trucks.

For backpassing, there is 1 supervisor vehicle.

³ The volume of sand imported for each phase (from Table 4) is divided by the volume of the 14 cubic yard hauling trucks and multiplied by 2 to get the total number of one-way hauling trips for each phase.

⁴ The worker trip length is the distance measured from the project site to the Malibu city boundary, which is assumed to be the average trip length for a worker.

⁵ The vendor trip length is the CalEEMod default value.

⁶ The inland local quarries in the Moorpark/Simi area of Simi Valley are 40 to 56 miles from the site by truck, per the October 2013 traffic study.

Table 6a. Summary of On-Site Construction Criteria Air Pollutant Emissions (Peak Day, Local)

Construction Phase	Year	VOC ¹	NO _x	CO	SO ₂	PM ₁₀ Total	PM _{2.5} Total
		Maximum (lbs/day)					
Nourishment	2013	26.7	301.0	167.1	0.3	8.3	4.9
	2014	25.1	283.2	161.4	0.3	8.2	4.8
Dune Construction	2014	1.7	18.9	14.3	0.0	0.4	0.2
Planting, Fencing, Signage, Irrigation	2014	--	--	--	--	--	--
Maximum Daily Emissions		27	301	167	0.3	8	5
SCAQMD Localized Significance Threshold ²		--	221	1,531	--	13	6
Above Threshold?		No	Yes	No	No	No	No

Notes:

¹ ROG as defined by CalEEMod is assumed to be equal to VOC as defined by SCAQMD.

² SCAQMD CEQA localized significance thresholds (LSTs) for a 5 acre site in Northwest Coastal LA County at a 25 m receptor distance. It is assumed that no more than 5 acres of Broad Beach would be worked on at any given time.

Abbreviations:

CEQA - California Environmental Quality Act

CO - carbon monoxide

lbs - pounds

NO_x - nitrogen oxides

PM₁₀ - particulate matter of 10 microns in diameter or smaller

PM_{2.5} - particulate matter of 2.5 microns in diameter or smaller

ROG - reactive organic gas

SCAQMD - South Coast Air Quality Management District

SO₂ - sulfur dioxide

VOC - volatile organic compound

Reference:

¹ SCAQMD air quality CEQA localized significance thresholds. Available at: <http://www.aqmd.gov/ceqa/handbook/LST/appC.pdf>. Accessed: October 2013

Table 6b. Summary of Total Construction Criteria Air Pollutant Emissions (Peak Day, Regional)

Year	VOC ¹	NO _x	CO	SO ₂	PM ₁₀ Total	PM _{2.5} Total
	Maximum (lbs/day)					
2013	82.1	355.5	350.8	0.6	47.9	16.0
2014	137.0	409.4	537.1	1.1	93.2	28.1
Maximum Daily Emissions ²	137	409	537	1.1	93	28
SCAQMD Threshold ³	75	100	550	150	150	55
Above Threshold?	Yes	Yes	No	No	No	No

Notes:

¹ ROG as defined by CalEEMod is assumed to be equal to VOC as defined by SCAQMD.

² The hauling truck trip length was changed to 56 miles after the CalEEMod runs had been executed using the original hauling distance of 45 miles. Thus, hauling emissions from the CalEEMod output files were scaled by multiplying by a factor of 56/45.

³ SCAQMD CEQA significance thresholds.

Abbreviations:

CEQA - California Environmental Quality Act

CO - carbon monoxide

lbs - pounds

NO_x - nitrogen oxides

PM₁₀ - particulate matter of 10 microns in diameter or smaller

PM_{2.5} - particulate matter of 2.5 microns in diameter or smaller

ROG - reactive organic gas

SCAQMD - South Coast Air Quality Management District

SO₂ - sulfur dioxide

VOC - volatile organic compound

Reference:

¹ SCAQMD air quality CEQA significance thresholds. Available at: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>. Accessed: September 2013

Table 7. Summary of Operational Criteria Air Pollutant Emissions

Phase	Year	VOC ¹	NO _x	CO	SO ₂ ²	PM ₁₀	PM _{2.5}
		(lbs/day)					
Backpassing ³	2014	8.8	108.0	71.5	0.1	5.1	2.4
Renourishment ⁴	2023	42.2	125.5	190.5	0.6	42.5	13.2
	2024	40.9	117.6	185.6	0.6	59.7	17.4
	Maximum	42	126	190	1	60	17
Maximum Daily Emissions⁵		42	126	190	1	60	17
SCAQMD Threshold⁶		55	55	550	150	150	55
Above Threshold?		No	Yes	No	No	No	No

Notes:

¹ ROG as defined by CalEEMod is assumed to be equal to VOC as defined by SCAQMD.

² CalEEMod reported SO₂ emissions are assumed to represent SO_x emissions.

³ Backpassing occurs each year for 15 days.

⁴ Renourishment is a one-time event that is anticipated to occur 10 years after the initial nourishment.

⁵ The hauling truck trip length was changed to 56 miles after the CalEEMod runs had been executed using the original hauling distance of 45 miles. Because emissions are a linear function of vehicle miles traveled, hauling emissions from the CalEEMod output files were scaled by multiplying by a factor of 56/45.

⁶ SCAQMD CEQA significance thresholds.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel

CO - carbon monoxide

lbs - pounds

NO_x - nitrogen oxides

PM₁₀ - particulate matter of 10 microns in diameter or smaller

PM_{2.5} - particulate matter of 2.5 microns in diameter or smaller

ROG - reactive organic gas

SCAQMD - South Coast Air Quality Management District

SO₂ - sulfur dioxide

VOC - volatile organic compound

Reference:

⁵ SCAQMD air quality CEQA significance thresholds. Available at: <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>. Accessed: September 2013

Table 8. Annual GHG Construction Emissions

Construction Activity	Year	Off-road Equipment	On-road Vehicles	Total
		CO ₂ e Emissions (MT/year)		
Nourishment	2013	954.4	1,174.1	2,128.5
	2014	653.8	805.9	1,459.7
Dune Construction	2014	21.1	378.9	400.0
Planting, Fencing, Signage, Irrigation ¹	2014	--	16.0	16.0
Total for All Activity² (MT CO₂e)				4,004.1
30-year Amortized (MT/year CO₂e)				133.5

Notes:

¹ No off-road equipment is used for the planting, fencing, signage, and irrigation phase.

² The hauling truck trip length was changed to 56 miles after the CalEEMod runs had been executed using the original hauling distance of 45 miles. Because emissions are a linear function of vehicle miles traveled, hauling emissions from the CalEEMod output files were scaled by multiplying by a factor of 56/45.

Abbreviations:

CO₂e - carbon dioxide equivalent

GHG - greenhouse gas

MT - metric tonnes

Table 9. Vegetation Change Evaluation

Type of Vegetation Change	Land Use Change		Annual CO ₂ Accumulation (MT)
	Initial (acres)	Final (acres)	
Grassland	1	3.7	-11.6
Total CO₂e Accumulated / Sequestered (MT)			-11.6
30-year Amortized (MT/year)			-0.4

Notes:

¹ Approximately 1 acre of ice plants will be removed. 159,567 square feet (3.7 acres) of native species including sand verbena, beach bur, beach saltbrush, beach morning glory, beach evening primrose, salt grass, beach strawberry, California sagebrush, California croton, beach spectacle pod, California goldenbrush, coast buckwheat, and chamisso bush lupine will be planted. The CalEEMod "Grassland" category was used to estimate the CO₂ accumulation.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODEL

CO₂ - carbon dioxide

CO₂e - carbon dioxide equivalent

MT - metric tonnes

Table 10. Summary of GHG Emissions

Source Type	CO ₂ e Emissions Associated with Source Category (MT/year)	
	Phase	Project Total
Annual Emissions		
Operation	Backpassing	60
One-Time Emissions¹		
Operation	Renourishment ²	96
Vegetation ³	Planting, Fencing, Signage, Irrigation	-0.4
Construction	Nourishment, Dune Construction, and Planting, Fencing, Signage, Irrigation	133
Total		290

Notes:

¹ Total emissions from one-time events are amortized over 30 years.

² The renourishment emission shown in the table is the 30-year amortized value. The total CO₂e emissions from renourishment total 2,621 pounds.

³ Negative emissions from vegetation change indicates an increase in CO₂e sequestration.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel

CO₂e - carbon dioxide equivalent

GHG - greenhouse gas

MT - metric tonnes

Table 11. On-Site Toxic Air Contaminant Emissions

Construction Activity	Year	Off-Road Equipment Diesel PM ₁₀	
		(tons/year)	(lbs/year)
Nourishment	2013	0.08	164
	2014	0.05	105
Dune Construction	2014	0.002	4
Planting, Fencing, Signage, Irrigation	2014	--	--
Total for All Activity		0.136	273
70-year Amortized¹		1.95E-03	3.90

Notes:

¹ The diesel exhaust PM₁₀ emissions from on-site off-road construction equipment are amortized over 70 years because the analysis for calculating cancer risk assumes exposure occurs over 70 years.

Table 12a. Rule 1401 Tier 2 Health Risk Assessment of On-Site Emissions (Cancer Risk)

TAC	CP ¹	Q _{yr} ²	X/Q ³	AF _{ann} ⁴	MET ⁵	DBR ⁶	EVF ⁷	Conversion Factor	MP ¹	MICR ⁸
	(mg/kg-day) ⁻¹	(ton/yr)	(µg/m ³)/ (ton/yr)			L/kg-day				
Diesel PM ₁₀	1.10E+00	1.95E-03	8.19	1.0	0.88	302	0.96	1E-06	1.00	4.48E-06
Total Maximum Individual Cancer Risk (MICR)										4.48E-06
SCAQMD CEQA Significance Threshold										1.00E-05
Above Threshold?										NO

Notes:

¹ The inhalation cancer potency (CP) and multipathway adjustment factor (MP) are from Table 8A of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

² The annual diesel exhaust particulate emissions (Q_{yr}) from construction equipment are calculated using CalEEMod 2013.2.1 and are amortized over 70 years because the analysis for calculating cancer risk assumes exposure occurs over 70 years.

³ This X/Q is for a volume source with the following dimensions: Area >30,000 ft² and Height >20 ft, and a downwind distance of 50 m. The X/Q is from Table 4A of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁴ The annual concentration adjustment factor (AF_{ann}) for residential receptors is from Table 2C of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁵ The meteorological correction factor (MET) for volume source equipment operating 12 hours per day or less is from Table 4B of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁶ The daily breathing rate (DBR) for residential receptors is from Table 9A of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁷ The exposure value factor (EVF) for residential receptors is from Table 9B of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁸ The Maximum Individual Cancer Risk (MICR) is calculated using MICR = CP x Q_{yr} x X/Q x AF_{ann} x MET x DBR x EVF x 10⁻⁶ x MP

Table 12b. Rule 1401 Tier 2 Health Risk Assessment of On-Site Emissions (Chronic Risk)

TAC	Q _{yr} ¹	X/Q ²	MET ³	MP ⁴	REL ⁴	HIC ⁵	Target Organ ⁶
	(ton/yr)	(µg/m ³)/ (ton/yr)			(µg/m ³)		RESP
Diesel PM ₁₀	1.36E-01	8.19	0.88	1.00	5.00E+00	1.97E-01	1.97E-01
Total Chronic Hazard Index (HIC)							1.97E-01
SCAQMD CEQA Significance Threshold							1.0
Above Threshold?							NO

Notes:

¹ The annual diesel exhaust particulate emissions (Q_{yr}) from construction equipment are calculated using CalEEMod 2013.2.1.

² This X/Q is for a volume source with the following dimensions: Area >30,000 ft² and Height >20 ft, and a downwind distance of 50 m. The X/Q is from Table 4A of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

³ The meteorological correction factor (MET) for volume source equipment operating 12 hours per day or less is from Table 4B of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁴ The multipathway adjustment factor (MP) and reference exposure level (REL) are from Table 8A of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

⁵ The Chronic Hazard Index (HIC) is calculated using $HIC = [Q_{yr} \times (X/Q) \times MET \times MP] / \text{Chronic REL}$

⁶ The affected target organ is from Table 10A of the SCAQMD Rule 1401 Attachment L, revised December 7, 2012.

Appendix A
CalEEMod™ Output Results

Broad Beach - Backpassing Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2014

Utility Company

CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0
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1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - project specific information

Off-road Equipment - project specific information

Off-road Equipment -

Trips and VMT - project specific information

5 personnel

Grading -

Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstructionPhase	NumDays	0.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Backpassing
tblOffRoadEquipment	UsageHours	1.00	12.00
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2014	0.0659	0.8101	0.5366	6.2000e-004	0.1046	0.0336	0.1382	0.0414	0.0309	0.0723	0.0000	59.6195	59.6195	0.0172	0.0000	59.9809
Total	0.0659	0.8101	0.5366	6.2000e-004	0.1046	0.0336	0.1382	0.0414	0.0309	0.0723	0.0000	59.6195	59.6195	0.0172	0.0000	59.9809

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					
2014	0.0659	0.8101	0.5366	6.2000e-004	0.0332	5.1000e-003	0.0382	0.0130	4.6900e-003	0.0177	0.0000	59.6194	59.6194	0.0172	0.0000	59.9809
Total	0.0659	0.8101	0.5366	6.2000e-004	0.0332	5.1000e-003	0.0382	0.0130	4.6900e-003	0.0177	0.0000	59.6194	59.6194	0.0172	0.0000	59.9809

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	68.30	84.82	72.33	68.54	84.83	75.50	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	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

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Backpassing	Grading	9/15/2014	10/3/2014	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Backpassing	Rubber Tired Dozers	1	12.00	255	0.40
Backpassing	Scrapers	3	12.00	361	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Backpassing	4	10.00	2.00	0.00	16.90	6.90		EMFAC_Mix	HHDT	

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Backpassing - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1035	0.0000	0.1035	0.0411	0.0000	0.0411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0637	0.8060	0.5269	6.0000e-004		0.0335	0.0335		0.0309	0.0309	0.0000	58.0431	58.0431	0.0172	0.0000	58.4033
Total	0.0637	0.8060	0.5269	6.0000e-004	0.1035	0.0335	0.1371	0.0411	0.0309	0.0720	0.0000	58.0431	58.0431	0.0172	0.0000	58.4033

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
Vendor	3.6000e-004	2.2000e-003	2.9500e-003	0.0000	9.0000e-005	4.0000e-005	1.2000e-004	2.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.3772	0.3772	0.0000	0.0000	0.3773
Worker	1.8600e-003	1.8800e-003	6.8000e-003	1.0000e-005	9.6000e-004	3.0000e-005	9.9000e-004	2.6000e-004	3.0000e-005	2.8000e-004	0.0000	1.1992	1.1992	6.0000e-005	0.0000	1.2003
Total	2.2200e-003	4.0800e-003	9.7500e-003	1.0000e-005	1.0500e-003	7.0000e-005	1.1100e-003	2.8000e-004	6.0000e-005	3.4000e-004	0.0000	1.5764	1.5764	6.0000e-005	0.0000	1.5776

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					0.0321	0.0000	0.0321	0.0127	0.0000	0.0127	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0637	0.8060	0.5269	6.0000e-004		5.0300e-003	5.0300e-003		4.6300e-003	4.6300e-003	0.0000	58.0431	58.0431	0.0172	0.0000	58.4033
Total	0.0637	0.8060	0.5269	6.0000e-004	0.0321	5.0300e-003	0.0371	0.0127	4.6300e-003	0.0174	0.0000	58.0431	58.0431	0.0172	0.0000	58.4033

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

Vendor	3.6000e-004	2.2000e-003	2.9500e-003	0.0000	9.0000e-005	4.0000e-005	1.2000e-004	2.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.3772	0.3772	0.0000	0.0000	0.3773
Worker	1.8600e-003	1.8800e-003	6.8000e-003	1.0000e-005	9.6000e-004	3.0000e-005	9.9000e-004	2.6000e-004	3.0000e-005	2.8000e-004	0.0000	1.1992	1.1992	6.0000e-005	0.0000	1.2003
Total	2.2200e-003	4.0800e-003	9.7500e-003	1.0000e-005	1.0500e-003	7.0000e-005	1.1100e-003	2.8000e-004	6.0000e-005	3.4000e-004	0.0000	1.5764	1.5764	6.0000e-005	0.0000	1.5776

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535275	0.058759	0.178478	0.127034	0.038632	0.006246	0.015618	0.028471	0.002426	0.003171	0.003696	0.000547	0.001645

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	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

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					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Architectural Coating	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

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
SubCategory	tons/yr										MT/yr						
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	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

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Backpassing Los Angeles-South Coast County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Backpassing	0.00	0.00	0.00	0.00	0.85	0.85	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Rubber Tired Dozers	Diesel	No Change	1	1	Level 3	0.00
Scrapers	Diesel	No Change	3	3	Level 3	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr						Unmitigated mt/yr						
Rubber Tired Dozers	1.43100E-002	1.63090E-001	1.24760E-001	1.00000E-004	7.60000E-003	7.00000E-003	0.00000E+000	9.63305E+000	9.63305E+000	2.85000E-003	0.00000E+000	9.69283E+000
Scrapers	4.93800E-002	6.42900E-001	4.02080E-001	5.00000E-004	2.59300E-002	2.38600E-002	0.00000E+000	4.84101E+001	4.84101E+001	1.43100E-002	0.00000E+000	4.87105E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr						Mitigated mt/yr						
Rubber Tired Dozers	1.43100E-002	1.63080E-001	1.24760E-001	1.00000E-004	1.14000E-003	1.05000E-003	0.00000E+000	9.63304E+000	9.63304E+000	2.85000E-003	0.00000E+000	9.69282E+000
Scrapers	4.93800E-002	6.42900E-001	4.02080E-001	5.00000E-004	3.89000E-003	3.58000E-003	0.00000E+000	4.84100E+001	4.84100E+001	1.43100E-002	0.00000E+000	4.87104E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				

No	Commute	Workplace Parking Charge			
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00
No	Commute	Provide Ride Sharing Program			
	Commute	Commute Subtotal	0.00		
No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	50.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	250.00
No	Use Low VOC Paint (Non-residential Exterior)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Broad Beach - Backpassing
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2014

Utility Company

CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0
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1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - project specific information

Off-road Equipment - project specific information

Off-road Equipment -

Trips and VMT - project specific information

5 personnel

Grading -

Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstructionPhase	NumDays	0.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Backpassing
tblOffRoadEquipment	UsageHours	1.00	12.00
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2014	8.7759	107.9756	71.5162	0.0829	13.9481	4.4802	18.4283	5.5189	4.1218	9.6407	0.0000	8,768.6493	8,768.6493	2.5297	0.0000	8,821.7739
Total	8.7759	107.9756	71.5162	0.0829	13.9481	4.4802	18.4283	5.5189	4.1218	9.6407	0.0000	8,768.6493	8,768.6493	2.5297	0.0000	8,821.7739

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					
2014	8.7759	107.9756	71.5162	0.0829	4.4223	0.6794	5.1018	1.7372	0.6251	2.3623	0.0000	8,768.6493	8,768.6493	2.5297	0.0000	8,821.7739
Total	8.7759	107.9756	71.5162	0.0829	4.4223	0.6794	5.1018	1.7372	0.6251	2.3623	0.0000	8,768.6493	8,768.6493	2.5297	0.0000	8,821.7739

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	68.29	84.83	72.32	68.52	84.84	75.50	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	0.0000					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

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	0.0000					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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Backpassing	Grading	9/15/2014	10/3/2014	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Backpassing	Rubber Tired Dozers	1	12.00	255	0.40
Backpassing	Scrapers	3	12.00	361	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Backpassing	4	10.00	2.00	0.00	16.90	6.90		EMFAC_Mix	HHDT	

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Backpassing - 2014

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					13.8054	0.0000	13.8054	5.4806	0.0000	5.4806			0.0000			0.0000
Off-Road	8.4924	107.4646	70.2462	0.0804		4.4715	4.4715		4.1138	4.1138		8,530.8776	8,530.8776	2.5210		8,583.8179
Total	8.4924	107.4646	70.2462	0.0804	13.8054	4.4715	18.2769	5.4806	4.1138	9.5944		8,530.8776	8,530.8776	2.5210		8,583.8179

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
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Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor	0.0460	0.2794	0.3436	5.4000e-004	0.0120	4.7800e-003	0.0168	3.3000e-003	4.4000e-003	7.7000e-003			55.5919	55.5919	5.4000e-004	55.6033
Worker	0.2375	0.2316	0.9264	1.9600e-003	0.1306	3.9200e-003	0.1346	0.0349	3.6000e-003	0.0385			182.1798	182.1798	8.2400e-003	182.3527
Total	0.2835	0.5110	1.2700	2.5000e-003	0.1427	8.7000e-003	0.1514	0.0382	8.0000e-003	0.0462			237.7717	237.7717	8.7800e-003	237.9560

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.2797	0.0000	4.2797	1.6990	0.0000	1.6990			0.0000			0.0000
Off-Road	8.4924	107.4646	70.2462	0.0804		0.6707	0.6707		0.6171	0.6171	0.0000	8,530.8776	8,530.8776	2.5210		8,583.8179
Total	8.4924	107.4646	70.2462	0.0804	4.2797	0.6707	4.9504	1.6990	0.6171	2.3161	0.0000	8,530.8776	8,530.8776	2.5210		8,583.8179

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

Vendor	0.0460	0.2794	0.3436	5.4000e-004	0.0120	4.7800e-003	0.0168	3.3000e-003	4.4000e-003	7.7000e-003		55.5919	55.5919	5.4000e-004		55.6033
Worker	0.2375	0.2316	0.9264	1.9600e-003	0.1306	3.9200e-003	0.1346	0.0349	3.6000e-003	0.0385		182.1798	182.1798	8.2400e-003		182.3527
Total	0.2835	0.5110	1.2700	2.5000e-003	0.1427	8.7000e-003	0.1514	0.0382	8.0000e-003	0.0462		237.7717	237.7717	8.7800e-003		237.9560

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535275	0.058759	0.178478	0.127034	0.038632	0.006246	0.015618	0.028471	0.002426	0.003171	0.003696	0.000547	0.001645

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	0.0000					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

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					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Architectural Coating	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

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Backpassing
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2014

Utility Company

CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0
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1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use -
- Construction Phase - project specific information
- Off-road Equipment - project specific information
- Off-road Equipment -
- Trips and VMT - project specific information
- 5 personnel
- Grading -
- Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstructionPhase	NumDays	0.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Backpassing
tblOffRoadEquipment	UsageHours	1.00	12.00
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2014	8.8216	107.9973	71.5470	0.0828	13.9481	4.4803	18.4283	5.5189	4.1219	9.6407	0.0000	8,760.1212	8,760.1212	2.5298	0.0000	8,813.2461
Total	8.8216	107.9973	71.5470	0.0828	13.9481	4.4803	18.4283	5.5189	4.1219	9.6407	0.0000	8,760.1212	8,760.1212	2.5298	0.0000	8,813.2461

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
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Year	lb/day											lb/day				
2014	8.8216	107.9973	71.5470	0.0828	4.4223	0.6795	5.1018	1.7372	0.6251	2.3624	0.0000	8,760.1212	8,760.1212	2.5298	0.0000	8,813.2461
Total	8.8216	107.9973	71.5470	0.0828	4.4223	0.6795	5.1018	1.7372	0.6251	2.3624	0.0000	8,760.1212	8,760.1212	2.5298	0.0000	8,813.2461

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	68.29	84.83	72.32	68.52	84.83	75.50	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	0.0000					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

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				

Backpassing	4	10.00	2.00	0.00	16.90	6.90	EMFAC_Mix	HHDT
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3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Backpassing - 2014

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					13.8054	0.0000	13.8054	5.4806	0.0000	5.4806			0.0000			0.0000
Off-Road	8.4924	107.4646	70.2462	0.0804		4.4715	4.4715		4.1138	4.1138		8,530.8776	8,530.8776	2.5210		8,583.8179
Total	8.4924	107.4646	70.2462	0.0804	13.8054	4.4715	18.2769	5.4806	4.1138	9.5944		8,530.8776	8,530.8776	2.5210		8,583.8179

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
Vendor	0.0507	0.2876	0.4068	5.4000e-004	0.0120	4.8300e-003	0.0169	3.3000e-003	4.4400e-003	7.7400e-003		55.2322	55.2322	5.5000e-004		55.2439

Worker	0.2785	0.2452	0.8940	1.8700e-003	0.1306	3.9300e-003	0.1346	0.0349	3.6100e-003	0.0385		174.0114	174.0114	8.2400e-003		174.1844
Total	0.3292	0.5327	1.3008	2.4100e-003	0.1427	8.7600e-003	0.1514	0.0382	8.0500e-003	0.0463		229.2436	229.2436	8.7900e-003		229.4282

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					4.2797	0.0000	4.2797	1.6990	0.0000	1.6990			0.0000				0.0000
Off-Road	8.4924	107.4646	70.2462	0.0804		0.6707	0.6707		0.6171	0.6171	0.0000	8,530.8776	8,530.8776	2.5210			8,583.8179
Total	8.4924	107.4646	70.2462	0.0804	4.2797	0.6707	4.9504	1.6990	0.6171	2.3161	0.0000	8,530.8776	8,530.8776	2.5210			8,583.8179

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
Vendor	0.0507	0.2876	0.4068	5.4000e-004	0.0120	4.8300e-003	0.0169	3.3000e-003	4.4400e-003	7.7400e-003		55.2322	55.2322	5.5000e-004			55.2439
Worker	0.2785	0.2452	0.8940	1.8700e-003	0.1306	3.9300e-003	0.1346	0.0349	3.6100e-003	0.0385		174.0114	174.0114	8.2400e-003			174.1844
Total	0.3292	0.5327	1.3008	2.4100e-003	0.1427	8.7600e-003	0.1514	0.0382	8.0500e-003	0.0463		229.2436	229.2436	8.7900e-003			229.4282

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535275	0.058759	0.178478	0.127034	0.038632	0.006246	0.015618	0.028471	0.002426	0.003171	0.003696	0.000547	0.001645

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	0.0000					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

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					
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Architectural Coating	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

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
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7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Construction
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2013
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - project specific information

Off-road Equipment - project specific information

Off-road Equipment - nourishment equipment list

Off-road Equipment - project specific information

Off-road Equipment - project specific information

Trips and VMT - 12 workers (pg 42 of PD)

14-ton hauling trucks

40-45 miles to quarry (pg 14 of PD)

Grading -

Land Use Change -

Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstructionPhase	NumDays	0.00	130.00
tblConstructionPhase	NumDays	0.00	22.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	PhaseEndDate	3/14/2014	3/15/2014
tblConstructionPhase	PhaseEndDate	5/16/2014	5/15/2014
tblConstructionPhase	PhaseStartDate	3/16/2014	3/15/2014
tblConstructionPhase	PhaseStartDate	4/16/2014	4/15/2014
tblGrading	MaterialImported	0.00	500,000.00
tblGrading	MaterialImported	0.00	100,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName		Dune Construction
tblOffRoadEquipment	UsageHours	1.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblProjectCharacteristics	OperationalYear	2014	2013
tblTripsAndVMT	HaulingTripNumber	62,500.00	71,500.00
tblTripsAndVMT	HaulingTripNumber	0.00	14,300.00
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripNumber	53.00	24.00
tblTripsAndVMT	WorkerTripNumber	15.00	24.00
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2013	2.5743	13.3768	12.0370	0.0211	2.4625	0.5831	3.0456	0.9199	0.5403	1.4602	0.0000	1,915.4520	1,915.4520	0.3147	0.0000	1,922.0606
2014	2.1281	9.3753	9.6167	0.0185	2.6816	0.3913	3.0729	0.9736	0.3624	1.3361	0.0000	1,647.0977	1,647.0977	0.2339	0.0000	1,652.0089
Total	4.7023	22.7521	21.6536	0.0396	5.1441	0.9744	6.1185	1.8935	0.9027	2.7963	0.0000	3,562.5497	3,562.5497	0.5486	0.0000	3,574.0695

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					
2013	2.5743	13.3767	12.0370	0.0211	1.5695	0.1197	1.6892	0.4945	0.1106	0.6052	0.0000	1,915.4509	1,915.4509	0.3147	0.0000	1,922.0594
2014	2.1281	9.3753	9.6167	0.0185	1.7846	0.0815	1.8662	0.5477	0.0753	0.6230	0.0000	1,647.0969	1,647.0969	0.2339	0.0000	1,652.0081
Total	4.7023	22.7520	21.6536	0.0396	3.3541	0.2012	3.5553	1.0422	0.1860	1.2282	0.0000	3,562.5478	3,562.5478	0.5486	0.0000	3,574.0675

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	34.80	79.35	41.89	44.96	79.40	56.08	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
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Category	tons/yr										MT/yr				
Area	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

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.3 Vegetation

Vegetation

	CO2e
Category	MT

Vegetation Land Change	11.6370
Total	11.6370

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Nourishment	Grading	9/15/2013	3/15/2014	5	130	
2	Dune Construction	Grading	3/15/2014	4/15/2014	5	22	
3	Planting, Fencing, Signage, Irrigation	Site Preparation	4/15/2014	5/15/2014	5	23	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Nourishment	Excavators	1	11.00	162	0.38
Nourishment	Generator Sets	2	11.00	84	0.74
Nourishment	Off-Highway Trucks	7	11.00	400	0.38
Nourishment	Other General Industrial Equipment	2	11.00	87	0.34
Nourishment	Other Material Handling Equipment	3	11.00	167	0.40
Nourishment	Rubber Tired Dozers	2	11.00	255	0.40
Nourishment	Scrapers	2	11.00	361	0.48
Nourishment	Tractors/Loaders/Backhoes	2	11.00	97	0.37
Dune Construction	Skid Steer Loaders	4	11.00	64	0.37

Dune Construction	Tractors/Loaders/Backhoes	2	11.00	97	0.37
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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
Nourishment	21	24.00	48.00	71,500.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix
Dune Construction	6	24.00	0.00	14,300.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix
Planting, Fencing, Signage, Irrigation	0	24.00	40.00	0.00	16.90	6.90	0.00	EMFAC_Mix	HHDT	EMFAC_Mix

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Nourishment - 2013

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					1.2943	0.0000	1.2943	0.6165	0.0000	0.6165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0264	11.5880	6.4338	9.8900e-003		0.5452	0.5452		0.5055	0.5055	0.0000	948.7320	948.7320	0.2688	0.0000	954.3773
Total	1.0264	11.5880	6.4338	9.8900e-003	1.2943	0.5452	1.8395	0.6165	0.5055	1.1220	0.0000	948.7320	948.7320	0.2688	0.0000	954.3773

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4636	1.4579	5.1052	0.0105	1.1455	0.0297	1.1752	0.2973	0.0272	0.3245	0.0000	905.0648	905.0648	0.0445	0.0000	905.9996
Vendor	0.0592	0.3058	0.4057	5.0000e-004	0.0109	7.7500e-003	0.0187	3.0000e-003	7.1200e-003	0.0101	0.0000	46.6456	46.6456	6.0000e-004	0.0000	46.6581
Worker	0.0251	0.0250	0.0924	1.7000e-004	0.0118	5.0000e-004	0.0123	3.1700e-003	4.5000e-004	3.6200e-003	0.0000	15.0096	15.0096	7.6000e-004	0.0000	15.0255
Total	1.5479	1.7887	5.6032	0.0112	1.1683	0.0379	1.2062	0.3034	0.0348	0.3383	0.0000	966.7200	966.7200	0.0459	0.0000	967.6832

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					0.4012	0.0000	0.4012	0.1911	0.0000	0.1911	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0264	11.5880	6.4337	9.8900e-003		0.0818	0.0818		0.0758	0.0758	0.0000	948.7309	948.7309	0.2688	0.0000	954.3762
Total	1.0264	11.5880	6.4337	9.8900e-003	0.4012	0.0818	0.4830	0.1911	0.0758	0.2669	0.0000	948.7309	948.7309	0.2688	0.0000	954.3762

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
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Category	tons/yr										MT/yr					
	Hauling	1.4636	1.4579	5.1052	0.0105	1.1455	0.0297	1.1752	0.2973	0.0272	0.3245	0.0000	905.0648	905.0648	0.0445	0.0000
Vendor	0.0592	0.3058	0.4057	5.0000e-004	0.0109	7.7500e-003	0.0187	3.0000e-003	7.1200e-003	0.0101	0.0000	46.6456	46.6456	6.0000e-004	0.0000	46.6581
Worker	0.0251	0.0250	0.0924	1.7000e-004	0.0118	5.0000e-004	0.0123	3.1700e-003	4.5000e-004	3.6200e-003	0.0000	15.0096	15.0096	7.6000e-004	0.0000	15.0255
Total	1.5479	1.7887	5.6032	0.0112	1.1683	0.0379	1.2062	0.3034	0.0348	0.3383	0.0000	966.7200	966.7200	0.0459	0.0000	967.6832

3.2 Nourishment - 2014

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					1.2943	0.0000	1.2943	0.6165	0.0000	0.6165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6663	7.5038	4.2762	6.8000e-003		0.3502	0.3502		0.3246	0.3246	0.0000	649.8997	649.8997	0.1846	0.0000	653.7761
Total	0.6663	7.5038	4.2762	6.8000e-003	1.2943	0.3502	1.6444	0.6165	0.3246	0.9411	0.0000	649.8997	649.8997	0.1846	0.0000	653.7761

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	0.9203	0.9260	3.1770	7.2600e-003	1.1126	0.0149	1.1275	0.2842	0.0137	0.2979	0.0000	613.1243	613.1243	0.0280	0.0000	613.7130
Vendor	0.0308	0.1862	0.2502	3.5000e-004	7.5300e-003	3.0500e-003	0.0106	2.0700e-003	2.8100e-003	4.8700e-003	0.0000	31.9877	31.9877	3.2000e-004	0.0000	31.9943

Worker	0.0158	0.0159	0.0576	1.2000e-004	8.1500e-003	2.5000e-004	8.4000e-003	2.1800e-003	2.3000e-004	2.4100e-003	0.0000	10.1688	10.1688	4.8000e-004	0.0000	10.1788
Total	0.9669	1.1282	3.4849	7.7300e-003	1.1283	0.0182	1.1465	0.2884	0.0167	0.3052	0.0000	655.2808	655.2808	0.0288	0.0000	655.8861

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					0.4012	0.0000	0.4012	0.1911	0.0000	0.1911	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.6663	7.5038	4.2762	6.8000e-003		0.0525	0.0525		0.0487	0.0487	0.0000	649.8989	649.8989	0.1846	0.0000	653.7753
Total	0.6663	7.5038	4.2762	6.8000e-003	0.4012	0.0525	0.4538	0.1911	0.0487	0.2398	0.0000	649.8989	649.8989	0.1846	0.0000	653.7753

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	0.9203	0.9260	3.1770	7.2600e-003	1.1126	0.0149	1.1275	0.2842	0.0137	0.2979	0.0000	613.1243	613.1243	0.0280	0.0000	613.7130
Vendor	0.0308	0.1862	0.2502	3.5000e-004	7.5300e-003	3.0500e-003	0.0106	2.0700e-003	2.8100e-003	4.8700e-003	0.0000	31.9877	31.9877	3.2000e-004	0.0000	31.9943
Worker	0.0158	0.0159	0.0576	1.2000e-004	8.1500e-003	2.5000e-004	8.4000e-003	2.1800e-003	2.3000e-004	2.4100e-003	0.0000	10.1688	10.1688	4.8000e-004	0.0000	10.1788
Total	0.9669	1.1282	3.4849	7.7300e-003	1.1283	0.0182	1.1465	0.2884	0.0167	0.3052	0.0000	655.2808	655.2808	0.0288	0.0000	655.8861

3.3 Dune Construction - 2014

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					5.6500e-003	0.0000	5.6500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0188	0.2083	0.1576	2.2000e-004		0.0143	0.0143		0.0132	0.0132	0.0000	20.9374	20.9374	6.1900e-003	0.0000	21.0674
Total	0.0188	0.2083	0.1576	2.2000e-004	5.6500e-003	0.0143	0.0200	8.6000e-004	0.0132	0.0140	0.0000	20.9374	20.9374	6.1900e-003	0.0000	21.0674

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	0.4515	0.4543	1.5585	3.5600e-003	0.2438	7.3100e-003	0.2511	0.0653	6.7100e-003	0.0720	0.0000	300.7780	300.7780	0.0138	0.0000	301.0667
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5600e-003	6.6100e-003	0.0239	5.0000e-005	3.3800e-003	1.0000e-004	3.4900e-003	9.1000e-004	1.0000e-004	1.0000e-003	0.0000	4.2210	4.2210	2.0000e-004	0.0000	4.2252
Total	0.4580	0.4609	1.5825	3.6100e-003	0.2472	7.4100e-003	0.2546	0.0662	6.8100e-003	0.0730	0.0000	304.9990	304.9990	0.0140	0.0000	305.2919

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
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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	0.0111	0.0674	0.0905	1.2000e-004	2.7200e-003	1.1000e-003	3.8300e-003	7.5000e-004	1.0200e-003	1.7600e-003	0.0000	11.5679	11.5679	1.1000e-004	0.0000	11.5703
Worker	6.8600e-003	6.9100e-003	0.0250	5.0000e-005	3.5400e-003	1.1000e-004	3.6400e-003	9.5000e-004	1.0000e-004	1.0500e-003	0.0000	4.4129	4.4129	2.1000e-004	0.0000	4.4172
Total	0.0180	0.0743	0.1155	1.7000e-004	6.2600e-003	1.2100e-003	7.4700e-003	1.7000e-003	1.1200e-003	2.8100e-003	0.0000	15.9808	15.9808	3.2000e-004	0.0000	15.9875

Mitigated Construction On-Site

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

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	0.0111	0.0674	0.0905	1.2000e-004	2.7200e-003	1.1000e-003	3.8300e-003	7.5000e-004	1.0200e-003	1.7600e-003	0.0000	11.5679	11.5679	1.1000e-004	0.0000	11.5703
Worker	6.8600e-003	6.9100e-003	0.0250	5.0000e-005	3.5400e-003	1.1000e-004	3.6400e-003	9.5000e-004	1.0000e-004	1.0500e-003	0.0000	4.4129	4.4129	2.1000e-004	0.0000	4.4172
Total	0.0180	0.0743	0.1155	1.7000e-004	6.2600e-003	1.2100e-003	7.4700e-003	1.7000e-003	1.1200e-003	2.8100e-003	0.0000	15.9808	15.9808	3.2000e-004	0.0000	15.9875

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535364	0.058953	0.178683	0.128422	0.038588	0.006258	0.015164	0.027061	0.002429	0.003187	0.003695	0.000550	0.001645

5.0 Energy Detail

Architectural Coating	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

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	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

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	11.6370	0.0000	0.0000	11.6370

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	1 / 3.7	11.6370	0.0000	0.0000	11.6370
Total		11.6370	0.0000	0.0000	11.6370

Broad Beach - Construction

Los Angeles-South Coast County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Dune Construction	0.00	0.00	0.00	0.00	0.69	0.69	0.00	0.00	0.00	0.00	0.00	0.00
Nourishment	0.00	0.00	0.00	0.00	0.82	0.82	0.00	0.00	0.00	0.00	0.00	0.00
Planting, Fencing, Signage, Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Excavators	Diesel	No Change	1	1	Level 3	0.00
Generator Sets	Diesel	No Change	2	2	Level 3	0.00
Off-Highway Trucks	Diesel	No Change	7	7	Level 3	0.00
Other General Industrial Equipment	Diesel	No Change	2	2	Level 3	0.00
Other Material Handling Equipment	Diesel	No Change	3	3	Level 3	0.00
Rubber Tired Dozers	Diesel	No Change	2	2	Level 3	0.00
Scrapers	Diesel	No Change	2	2	Level 3	0.00
Skid Steer Loaders	Diesel	No Change	4	4	Level 3	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	4	4	Level 3	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr						Unmitigated mt/yr						
Excavators	3.97700E-002	4.76790E-001	3.06970E-001	4.70000E-004	2.36200E-002	2.17300E-002	0.00000E+000	4.56387E+001	4.56387E+001	1.34500E-002	0.00000E+000	4.59211E+001

Generator Sets	1.49530E-001	1.04706E+000	6.96220E-001	1.18000E-003	7.99700E-002	7.99700E-002	0.00000E+000	1.01031E+002	1.01031E+002	1.21900E-002	0.00000E+000	1.01287E+002
Off-Highway Trucks	6.88460E-001	8.23304E+000	3.58224E+000	8.24000E-003	3.18000E-001	2.92560E-001	0.00000E+000	7.95042E+002	7.95042E+002	2.34240E-001	0.00000E+000	7.99961E+002
Other General Industrial	7.55700E-002	6.44060E-001	3.83000E-001	4.50000E-004	5.47900E-002	5.04000E-002	0.00000E+000	4.36475E+001	4.36475E+001	1.28600E-002	0.00000E+000	4.39176E+001
Other Material Handling	1.72750E-001	1.89801E+000	1.08474E+000	1.54000E-003	1.02550E-001	9.43500E-002	0.00000E+000	1.48551E+002	1.48551E+002	4.37700E-002	0.00000E+000	1.49470E+002
Rubber Tired Dozers	2.31000E-001	2.64427E+000	2.03155E+000	1.59000E-003	1.23510E-001	1.13620E-001	0.00000E+000	1.53617E+002	1.53617E+002	4.52600E-002	0.00000E+000	1.54568E+002
Scrapers	2.67210E-001	3.49693E+000	2.19050E+000	2.66000E-003	1.41270E-001	1.29970E-001	0.00000E+000	2.57195E+002	2.57195E+002	7.57800E-002	0.00000E+000	2.58786E+002
Skid Steer Loaders	7.68000E-003	1.01410E-001	8.43500E-002	1.20000E-004	5.93000E-003	5.45000E-003	0.00000E+000	1.18522E+001	1.18522E+001	3.50000E-003	0.00000E+000	1.19258E+001
Tractors/Loaders/Bulldozers	7.95000E-002	7.58480E-001	5.08020E-001	6.50000E-004	6.00100E-002	5.52100E-002	0.00000E+000	6.29953E+001	6.29953E+001	1.85700E-002	0.00000E+000	6.33852E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Mitigated tons/yr						Mitigated mt/yr							
Excavators	3.97700E-002	4.76780E-001	3.06970E-001	4.70000E-004	3.54000E-003	3.26000E-003	0.00000E+000	4.56387E+001	4.56387E+001	1.34500E-002	0.00000E+000	4.59210E+001	
Generator Sets	1.49530E-001	1.04706E+000	6.96210E-001	1.18000E-003	1.20000E-002	1.20000E-002	0.00000E+000	1.01031E+002	1.01031E+002	1.21900E-002	0.00000E+000	1.01287E+002	
Off-Highway Trucks	6.88460E-001	8.23303E+000	3.58223E+000	8.24000E-003	4.77000E-002	4.38800E-002	0.00000E+000	7.95041E+002	7.95041E+002	2.34240E-001	0.00000E+000	7.99960E+002	
Other General Industrial Equipment	7.55700E-002	6.44060E-001	3.83000E-001	4.50000E-004	8.22000E-003	7.56000E-003	0.00000E+000	4.36475E+001	4.36475E+001	1.28600E-002	0.00000E+000	4.39175E+001	
Other Material Handling Equipment	1.72750E-001	1.89801E+000	1.08474E+000	1.54000E-003	1.53800E-002	1.41500E-002	0.00000E+000	1.48551E+002	1.48551E+002	4.37700E-002	0.00000E+000	1.49470E+002	
Rubber Tired Dozers	2.31000E-001	2.64426E+000	2.03155E+000	1.59000E-003	1.85300E-002	1.70400E-002	0.00000E+000	1.53617E+002	1.53617E+002	4.52600E-002	0.00000E+000	1.54567E+002	
Scrapers	2.67210E-001	3.49693E+000	2.19050E+000	2.66000E-003	2.11900E-002	1.95000E-002	0.00000E+000	2.57194E+002	2.57194E+002	7.57800E-002	0.00000E+000	2.58786E+002	
Skid Steer Loaders	7.68000E-003	1.01410E-001	8.43500E-002	1.20000E-004	8.90000E-004	8.20000E-004	0.00000E+000	1.18522E+001	1.18522E+001	3.50000E-003	0.00000E+000	1.19258E+001	
Tractors/Loaders/Bulldozers	7.95000E-002	7.58480E-001	5.08020E-001	6.50000E-004	9.00000E-003	8.28000E-003	0.00000E+000	6.29952E+001	6.29952E+001	1.85700E-002	0.00000E+000	6.33852E+001	

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Excavators	0.00000E+000	2.09736E-005	0.00000E+000	0.00000E+000	8.50127E-001	8.49977E-001	0.00000E+000	1.31467E-006	1.31467E-006	0.00000E+000	0.00000E+000	1.30659E-006
Generator Sets	0.00000E+000	0.00000E+000	1.43633E-005	0.00000E+000	8.49944E-001	8.49944E-001	0.00000E+000	1.18776E-006	1.18776E-006	0.00000E+000	0.00000E+000	1.18475E-006
Off-Highway Trucks	0.00000E+000	1.21462E-006	2.79155E-006	0.00000E+000	8.50000E-001	8.50014E-001	0.00000E+000	1.19491E-006	1.19491E-006	0.00000E+000	0.00000E+000	1.18756E-006
Other General Industrial Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.49973E-001	8.50000E-001	0.00000E+000	1.14554E-006	1.14554E-006	0.00000E+000	0.00000E+000	1.13850E-006
Other Material Handling Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.50024E-001	8.50026E-001	0.00000E+000	1.21171E-006	1.21171E-006	0.00000E+000	0.00000E+000	1.20426E-006
Rubber Tired Dozers	0.00000E+000	3.78176E-006	0.00000E+000	0.00000E+000	8.49972E-001	8.50026E-001	0.00000E+000	1.17174E-006	1.17174E-006	0.00000E+000	0.00000E+000	1.16454E-006
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.50004E-001	8.49965E-001	0.00000E+000	1.16643E-006	1.16643E-006	0.00000E+000	0.00000E+000	1.19790E-006

Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			

		Land Use and Site Enhancement Subtotal	0.00		
No	Commute	Implement Trip Reduction Program			
No	Commute	Transit Subsidy			
No	Commute	Implement Employee Parking "Cash Out"			
No	Commute	Workplace Parking Charge			
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00
No	Commute	Provide Ride Sharing Program			
	Commute	Commute Subtotal	0.00		
No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	50.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	250.00
No	Use Low VOC Paint (Non-residential Exterior)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		

No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Broad Beach - Construction
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2013

Utility Company

CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0
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1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - project specific information

Off-road Equipment - project specific information

Off-road Equipment - nourishment equipment list

Off-road Equipment - project specific information

Off-road Equipment - project specific information

Trips and VMT - 12 workers (pg 42 of PD)

14-ton hauling trucks

40-45 miles to quarry (pg 14 of PD)

Grading -

Land Use Change -

Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstructionPhase	NumDays	0.00	130.00
tblConstructionPhase	NumDays	0.00	22.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	PhaseEndDate	3/14/2014	3/15/2014
tblConstructionPhase	PhaseEndDate	5/16/2014	5/15/2014
tblConstructionPhase	PhaseStartDate	3/16/2014	3/15/2014
tblConstructionPhase	PhaseStartDate	4/16/2014	4/15/2014
tblGrading	MaterialImported	0.00	500,000.00
tblGrading	MaterialImported	0.00	100,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName		Dune Construction
tblOffRoadEquipment	UsageHours	1.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblProjectCharacteristics	OperationalYear	2014	2013
tblTripsAndVMT	HaulingTripNumber	62,500.00	71,500.00
tblTripsAndVMT	HaulingTripNumber	0.00	14,300.00
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripNumber	53.00	24.00
tblTripsAndVMT	WorkerTripNumber	15.00	24.00
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2013	64.9629	344.0865	317.0633	0.5574	50.8917	15.1438	66.0355	17.5215	14.0330	31.5545	0.0000	55,746.4687	55,746.4687	9.0098	0.0000	55,935.6754
2014	101.2552	380.2583	461.3216	0.9180	86.8312	15.8752	102.7064	26.7973	14.6958	41.4931	0.0000	88,867.3795	88,867.3795	10.8948	0.0000	89,096.1699
Total	166.2181	724.3448	778.3849	1.4754	137.7229	31.0191	168.7420	44.3188	28.7289	73.0476	0.0000	144,613.8482	144,613.8482	19.9046	0.0000	145,031.8453

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					
2013	64.9629	344.0865	317.0633	0.5574	37.1524	3.1075	40.2599	10.9776	2.8727	13.8503	0.0000	55,746.4686	55,746.4686	9.0098	0.0000	55,935.6753
2014	101.2552	380.2583	461.3216	0.9180	72.7372	3.5374	76.2746	20.1997	3.2661	23.4658	0.0000	88,867.3795	88,867.3795	10.8948	0.0000	89,096.1699
Total	166.2181	724.3448	778.3849	1.4754	109.8896	6.6449	116.5344	31.1773	6.1388	37.3161	0.0000	144,613.8481	144,613.8481	19.9046	0.0000	145,031.8452

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	20.21	78.58	30.94	29.65	78.63	48.92	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
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Category	lb/day										lb/day					
Area	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

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	0.0000					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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Nourishment	Grading	9/15/2013	3/15/2014	5	130	
2	Dune Construction	Grading	3/15/2014	4/15/2014	5	22	

3	Planting, Fencing, Signage, Irrigation	Site Preparation	4/15/2014	5/15/2014	5	23
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Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Nourishment	Excavators	1	11.00	162	0.38
Nourishment	Generator Sets	2	11.00	84	0.74
Nourishment	Off-Highway Trucks	7	11.00	400	0.38
Nourishment	Other General Industrial Equipment	2	11.00	87	0.34
Nourishment	Other Material Handling Equipment	3	11.00	167	0.40
Nourishment	Rubber Tired Dozers	2	11.00	255	0.40
Nourishment	Scrapers	2	11.00	361	0.48
Nourishment	Tractors/Loaders/Backhoes	2	11.00	97	0.37
Dune Construction	Skid Steer Loaders	4	11.00	64	0.37
Dune Construction	Tractors/Loaders/Backhoes	2	11.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Nourishment	21	24.00	48.00	71,500.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix
Dune Construction	6	24.00	0.00	14,300.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix
Planting, Fencing, Signage, Irrigation	0	24.00	40.00	0.00	16.90	6.90	0.00	EMFAC_Mix	HHDT	EMFAC_Mix

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Nourishment - 2013

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					19.9121	0.0000	19.9121	9.4839	0.0000	9.4839			0.0000			0.0000
Off-Road	26.6588	300.9876	167.1104	0.2568		14.1604	14.1604		13.1298	13.1298		27,163.5842	27,163.5842	7.6969		27,325.2190
Total	26.6588	300.9876	167.1104	0.2568	19.9121	14.1604	34.0724	9.4839	13.1298	22.6137		27,163.5842	27,163.5842	7.6969		27,325.2190

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	36.2160	34.9217	138.1550	0.2829	30.3773	0.7701	31.1474	7.8746	0.7071	8.5817		26,799.3491	26,799.3491	1.2744		26,826.1109
Vendor	1.4642	7.5760	9.3463	0.0130	0.2889	0.2005	0.4894	0.0792	0.1843	0.2635		1,339.1624	1,339.1624	0.0170		1,339.5186
Worker	0.6240	0.6012	2.4516	4.6900e-003	0.3134	0.0129	0.3263	0.0838	0.0118	0.0956		444.3729	444.3729	0.0216		444.8269
Total	38.3041	43.0989	149.9529	0.3006	30.9796	0.9835	31.9631	8.0376	0.9032	8.9408		28,582.8844	28,582.8844	1.3130		28,610.4564

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					6.1727	0.0000	6.1727	2.9400	0.0000	2.9400			0.0000				0.0000
Off-Road	26.6588	300.9876	167.1104	0.2568		2.1241	2.1241		1.9695	1.9695	0.0000	27,163.5842	27,163.5842	7.6969			27,325.2190
Total	26.6588	300.9876	167.1104	0.2568	6.1727	2.1241	8.2968	2.9400	1.9695	4.9095	0.0000	27,163.5842	27,163.5842	7.6969			27,325.2190

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	36.2160	34.9217	138.1550	0.2829	30.3773	0.7701	31.1474	7.8746	0.7071	8.5817			26,799.3491	26,799.3491	1.2744		26,826.1109
Vendor	1.4642	7.5760	9.3463	0.0130	0.2889	0.2005	0.4894	0.0792	0.1843	0.2635			1,339.1624	1,339.1624	0.0170		1,339.5186
Worker	0.6240	0.6012	2.4516	4.6900e-003	0.3134	0.0129	0.3263	0.0838	0.0118	0.0956			444.3729	444.3729	0.0216		444.8269
Total	38.3041	43.0989	149.9529	0.3006	30.9796	0.9835	31.9631	8.0376	0.9032	8.9408			28,582.8844	28,582.8844	1.3130		28,610.4564

3.2 Nourishment - 2014

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					19.9121	0.0000	19.9121	9.4839	0.0000	9.4839			0.0000				0.0000
Off-Road	25.1424	283.1608	161.3661	0.2568		13.2133	13.2133		12.2491	12.2491		27,033.6518	27,033.6518	7.6784			27,194.8981
Total	25.1424	283.1608	161.3661	0.2568	19.9121	13.2133	33.1253	9.4839	12.2491	21.7330		27,033.6518	27,033.6518	7.6784			27,194.8981

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	33.0720	32.2425	125.0935	0.2837	42.8912	0.5622	43.4534	10.9468	0.5162	11.4630		26,366.5038	26,366.5038	1.1659			26,390.9885
Vendor	1.1038	6.7052	8.2472	0.0131	0.2889	0.1148	0.4037	0.0792	0.1055	0.1847		1,334.2058	1,334.2058	0.0130			1,334.4781
Worker	0.5700	0.5559	2.2233	4.7100e-003	0.3135	9.4000e-003	0.3229	0.0839	8.6300e-003	0.0925		437.2315	437.2315	0.0198			437.6466
Total	34.7458	39.5035	135.5641	0.3015	43.4937	0.6863	44.1800	11.1098	0.6304	11.7402		28,137.9411	28,137.9411	1.1987			28,163.1132

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					6.1727	0.0000	6.1727	2.9400	0.0000	2.9400			0.0000				0.0000

Off-Road	25.1424	283.1608	161.3661	0.2568		1.9820	1.9820		1.8374	1.8374	0.0000	27,033.6518	27,033.6518	7.6784		27,194.8981
Total	25.1424	283.1608	161.3661	0.2568	6.1727	1.9820	8.1547	2.9400	1.8374	4.7774	0.0000	27,033.6518	27,033.6518	7.6784		27,194.8981

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	33.0720	32.2425	125.0935	0.2837	42.8912	0.5622	43.4534	10.9468	0.5162	11.4630		26,366.5038	26,366.5038	1.1659		26,390.9885
Vendor	1.1038	6.7052	8.2472	0.0131	0.2889	0.1148	0.4037	0.0792	0.1055	0.1847		1,334.2058	1,334.2058	0.0130		1,334.4781
Worker	0.5700	0.5559	2.2233	4.7100e-003	0.3135	9.4000e-003	0.3229	0.0839	8.6300e-003	0.0925		437.2315	437.2315	0.0198		437.6466
Total	34.7458	39.5035	135.5641	0.3015	43.4937	0.6863	44.1800	11.1098	0.6304	11.7402		28,137.9411	28,137.9411	1.1987		28,163.1132

3.3 Dune Construction - 2014

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					0.5140	0.0000	0.5140	0.0778	0.0000	0.0778			0.0000			0.0000
Off-Road	1.7118	18.9334	14.3304	0.0198		1.3019	1.3019		1.1977	1.1977		2,098.1415	2,098.1415	0.6200		2,111.1620
Total	1.7118	18.9334	14.3304	0.0198	0.5140	1.3019	1.8159	0.0778	1.1977	1.2755		2,098.1415	2,098.1415	0.6200		2,111.1620

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	39.0851	38.1048	147.8378	0.3353	22.5979	0.6644	23.2622	6.0419	0.6101	6.6520		31,160.4135	31,160.4135	1.3779		31,189.3501
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	0.5700	0.5559	2.2233	4.7100e-003	0.3135	9.4000e-003	0.3229	0.0839	8.6300e-003	0.0925		437.2315	437.2315	0.0198		437.6466
Total	39.6551	38.6606	150.0611	0.3400	22.9114	0.6738	23.5852	6.1258	0.6187	6.7445		31,597.6451	31,597.6451	1.3977		31,626.9967

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					0.1594	0.0000	0.1594	0.0241	0.0000	0.0241			0.0000			0.0000
Off-Road	1.7118	18.9334	14.3304	0.0198		0.1953	0.1953		0.1797	0.1797	0.0000	2,098.1415	2,098.1415	0.6200		2,111.1620
Total	1.7118	18.9334	14.3304	0.0198	0.1594	0.1953	0.3546	0.0241	0.1797	0.2038	0.0000	2,098.1415	2,098.1415	0.6200		2,111.1620

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
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Category	lb/day										lb/day					
Hauling	39.0851	38.1048	147.8378	0.3353	22.5979	0.6644	23.2622	6.0419	0.6101	6.6520		31,160.4135	31,160.4135	1.3779		31,189.3501
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	0.5700	0.5559	2.2233	4.7100e-003	0.3135	9.4000e-003	0.3229	0.0839	8.6300e-003	0.0925		437.2315	437.2315	0.0198		437.6466
Total	39.6551	38.6606	150.0611	0.3400	22.9114	0.6738	23.5852	6.1258	0.6187	6.7445		31,597.6451	31,597.6451	1.3977		31,626.9967

3.4 Planting, Fencing, Signage, Irrigation - 2014

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					0.0000	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

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	0.9199	5.5876	6.8727	0.0109	0.2408	0.0957	0.3364	0.0660	0.0879	0.1539		1,111.8382	1,111.8382	0.0108		1,112.0651

Worker	0.5700	0.5559	2.2233	4.7100e-003	0.3135	9.4000e-003	0.3229	0.0839	8.6300e-003	0.0925		437.2315	437.2315	0.0198		437.6466
Total	1.4899	6.1435	9.0960	0.0156	0.5543	0.1051	0.6594	0.1498	0.0966	0.2464		1,549.0697	1,549.0697	0.0306		1,549.7116

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					0.0000	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

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	0.9199	5.5876	6.8727	0.0109	0.2408	0.0957	0.3364	0.0660	0.0879	0.1539		1,111.8382	1,111.8382	0.0108		1,112.0651
Worker	0.5700	0.5559	2.2233	4.7100e-003	0.3135	9.4000e-003	0.3229	0.0839	8.6300e-003	0.0925		437.2315	437.2315	0.0198		437.6466
Total	1.4899	6.1435	9.0960	0.0156	0.5543	0.1051	0.6594	0.1498	0.0966	0.2464		1,549.0697	1,549.0697	0.0306		1,549.7116

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C- NW	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535364	0.058953	0.178683	0.128422	0.038588	0.006258	0.015164	0.027061	0.002429	0.003187	0.003695	0.000550	0.001645

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	0.0000					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

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
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7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Construction
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2013
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - project specific information

Off-road Equipment - project specific information

Off-road Equipment - nourishment equipment list

Off-road Equipment - project specific information

Off-road Equipment - project specific information

Trips and VMT - 12 workers (pg 42 of PD)

14-ton hauling trucks

40-45 miles to quarry (pg 14 of PD)

Grading -

Land Use Change -

Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstructionPhase	NumDays	0.00	130.00
tblConstructionPhase	NumDays	0.00	22.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	PhaseEndDate	3/14/2014	3/15/2014
tblConstructionPhase	PhaseEndDate	5/16/2014	5/15/2014
tblConstructionPhase	PhaseStartDate	3/16/2014	3/15/2014
tblConstructionPhase	PhaseStartDate	4/16/2014	4/15/2014
tblGrading	MaterialImported	0.00	500,000.00
tblGrading	MaterialImported	0.00	100,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	PhaseName		Dune Construction
tblOffRoadEquipment	UsageHours	1.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblProjectCharacteristics	OperationalYear	2014	2013
tblTripsAndVMT	HaulingTripNumber	62,500.00	71,500.00
tblTripsAndVMT	HaulingTripNumber	0.00	14,300.00
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripNumber	53.00	24.00
tblTripsAndVMT	WorkerTripNumber	15.00	24.00
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2013	71.6424	346.4814	310.4178	0.5439	50.8917	15.1467	66.0384	17.5215	14.0356	31.5571	0.0000	54,501.6194	54,501.6194	9.0104	0.0000	54,690.8381
2014	114.5329	384.7855	446.2010	0.8889	86.8312	15.8780	102.7092	26.7973	14.6984	41.4957	0.0000	86,236.1701	86,236.1701	10.8955	0.0000	86,464.9749
Total	186.1753	731.2669	756.6189	1.4328	137.7229	31.0247	168.7476	44.3188	28.7340	73.0528	0.0000	140,737.7894	140,737.7894	19.9059	0.0000	141,155.8131

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					
2013	71.6424	346.4814	310.4178	0.5439	37.1524	3.1104	40.2627	10.9776	2.8753	13.8529	0.0000	54,501.6194	54,501.6194	9.0104	0.0000	54,690.8381
2014	114.5329	384.7855	446.2010	0.8889	72.7372	3.5402	76.2773	20.1997	3.2686	23.4684	0.0000	86,236.1700	86,236.1700	10.8955	0.0000	86,464.9749
Total	186.1753	731.2669	756.6189	1.4328	109.8896	6.6505	116.5401	31.1773	6.1440	37.3212	0.0000	140,737.7894	140,737.7894	19.9059	0.0000	141,155.8130

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	20.21	78.56	30.94	29.65	78.62	48.91	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
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Category	lb/day										lb/day					
Area	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

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	0.0000					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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Nourishment	Grading	9/15/2013	3/15/2014	5	130	
2	Dune Construction	Grading	3/15/2014	4/15/2014	5	22	

3	Planting, Fencing, Signage, Irrigation	Site Preparation	4/15/2014	5/15/2014	5	23
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Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Nourishment	Excavators	1	11.00	162	0.38
Nourishment	Generator Sets	2	11.00	84	0.74
Nourishment	Off-Highway Trucks	7	11.00	400	0.38
Nourishment	Other General Industrial Equipment	2	11.00	87	0.34
Nourishment	Other Material Handling Equipment	3	11.00	167	0.40
Nourishment	Rubber Tired Dozers	2	11.00	255	0.40
Nourishment	Scrapers	2	11.00	361	0.48
Nourishment	Tractors/Loaders/Backhoes	2	11.00	97	0.37
Dune Construction	Skid Steer Loaders	4	11.00	64	0.37
Dune Construction	Tractors/Loaders/Backhoes	2	11.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Nourishment	21	24.00	48.00	71,500.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix
Dune Construction	6	24.00	0.00	14,300.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix
Planting, Fencing, Signage, Irrigation	0	24.00	40.00	0.00	16.90	6.90	0.00	EMFAC_Mix	HHDT	EMFAC_Mix

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Nourishment - 2013

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					19.9121	0.0000	19.9121	9.4839	0.0000	9.4839			0.0000			0.0000
Off-Road	26.6588	300.9876	167.1104	0.2568		14.1604	14.1604		13.1298	13.1298		27,163.5842	27,163.5842	7.6969		27,325.2190
Total	26.6588	300.9876	167.1104	0.2568	19.9121	14.1604	34.0724	9.4839	13.1298	22.6137		27,163.5842	27,163.5842	7.6969		27,325.2190

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	42.6420	37.0578	130.0728	0.2697	30.3773	0.7712	31.1485	7.8746	0.7081	8.5827		25,583.2716	25,583.2716	1.2745		25,610.0368
Vendor	1.6111	7.7993	10.8671	0.0130	0.2889	0.2022	0.4911	0.0792	0.1860	0.2651		1,330.5167	1,330.5167	0.0174		1,330.8813
Worker	0.7305	0.6367	2.3675	4.4800e-003	0.3134	0.0129	0.3263	0.0838	0.0118	0.0957		424.2469	424.2469	0.0216		424.7010
Total	44.9836	45.4938	143.3074	0.2872	30.9796	0.9863	31.9660	8.0376	0.9059	8.9434		27,338.0352	27,338.0352	1.3135		27,365.6191

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					6.1727	0.0000	6.1727	2.9400	0.0000	2.9400			0.0000				0.0000
Off-Road	26.6588	300.9876	167.1104	0.2568		2.1241	2.1241		1.9695	1.9695	0.0000	27,163.5842	27,163.5842	7.6969			27,325.2190
Total	26.6588	300.9876	167.1104	0.2568	6.1727	2.1241	8.2968	2.9400	1.9695	4.9095	0.0000	27,163.5842	27,163.5842	7.6969			27,325.2190

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	42.6420	37.0578	130.0728	0.2697	30.3773	0.7712	31.1485	7.8746	0.7081	8.5827		25,583.2716	25,583.2716	1.2745			25,610.0368
Vendor	1.6111	7.7993	10.8671	0.0130	0.2889	0.2022	0.4911	0.0792	0.1860	0.2651		1,330.5167	1,330.5167	0.0174			1,330.8813
Worker	0.7305	0.6367	2.3675	4.4800e-003	0.3134	0.0129	0.3263	0.0838	0.0118	0.0957		424.2469	424.2469	0.0216			424.7010
Total	44.9836	45.4938	143.3074	0.2872	30.9796	0.9863	31.9660	8.0376	0.9059	8.9434		27,338.0352	27,338.0352	1.3135			27,365.6191

3.2 Nourishment - 2014

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					19.9121	0.0000	19.9121	9.4839	0.0000	9.4839			0.0000			0.0000
Off-Road	25.1424	283.1608	161.3661	0.2568		13.2133	13.2133		12.2491	12.2491		27,033.6518	27,033.6518	7.6784		27,194.8981
Total	25.1424	283.1608	161.3661	0.2568	19.9121	13.2133	33.1253	9.4839	12.2491	21.7330		27,033.6518	27,033.6518	7.6784		27,194.8981

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	39.0155	34.1976	117.5395	0.2706	42.8912	0.5629	43.4541	10.9468	0.5169	11.4637		25,182.4600	25,182.4600	1.1661		25,206.9479
Vendor	1.2172	6.9015	9.7637	0.0130	0.2889	0.1159	0.4048	0.0792	0.1065	0.1857		1,325.5731	1,325.5731	0.0133		1,325.8527
Worker	0.6684	0.5884	2.1456	4.4900e-003	0.3135	9.4300e-003	0.3230	0.0839	8.6600e-003	0.0925		417.6273	417.6273	0.0198		418.0425
Total	40.9011	41.6875	129.4487	0.2881	43.4937	0.6882	44.1819	11.1098	0.6321	11.7419		26,925.6604	26,925.6604	1.1992		26,950.8431

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					6.1727	0.0000	6.1727	2.9400	0.0000	2.9400			0.0000			0.0000

Off-Road	25.1424	283.1608	161.3661	0.2568		1.9820	1.9820		1.8374	1.8374	0.0000	27,033.6518	27,033.6518	7.6784		27,194.8981
Total	25.1424	283.1608	161.3661	0.2568	6.1727	1.9820	8.1547	2.9400	1.8374	4.7774	0.0000	27,033.6518	27,033.6518	7.6784		27,194.8981

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	39.0155	34.1976	117.5395	0.2706	42.8912	0.5629	43.4541	10.9468	0.5169	11.4637		25,182.4600	25,182.4600	1.1661		25,206.9479
Vendor	1.2172	6.9015	9.7637	0.0130	0.2889	0.1159	0.4048	0.0792	0.1065	0.1857		1,325.5731	1,325.5731	0.0133		1,325.8527
Worker	0.6684	0.5884	2.1456	4.4900e-003	0.3135	9.4300e-003	0.3230	0.0839	8.6600e-003	0.0925		417.6273	417.6273	0.0198		418.0425
Total	40.9011	41.6875	129.4487	0.2881	43.4937	0.6882	44.1819	11.1098	0.6321	11.7419		26,925.6604	26,925.6604	1.1992		26,950.8431

3.3 Dune Construction - 2014

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					0.5140	0.0000	0.5140	0.0778	0.0000	0.0778			0.0000			0.0000
Off-Road	1.7118	18.9334	14.3304	0.0198		1.3019	1.3019		1.1977	1.1977		2,098.1415	2,098.1415	0.6200		2,111.1620
Total	1.7118	18.9334	14.3304	0.0198	0.5140	1.3019	1.8159	0.0778	1.1977	1.2755		2,098.1415	2,098.1415	0.6200		2,111.1620

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	46.1093	40.4154	138.9103	0.3198	22.5979	0.6652	23.2631	6.0419	0.6109	6.6528		29,761.0891	29,761.0891	1.3781		29,790.0293
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	0.6684	0.5884	2.1456	4.4900e-003	0.3135	9.4300e-003	0.3230	0.0839	8.6600e-003	0.0925		417.6273	417.6273	0.0198		418.0425
Total	46.7776	41.0038	141.0559	0.3243	22.9114	0.6747	23.5861	6.1258	0.6195	6.7453		30,178.7164	30,178.7164	1.3979		30,208.0718

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					0.1594	0.0000	0.1594	0.0241	0.0000	0.0241			0.0000			0.0000
Off-Road	1.7118	18.9334	14.3304	0.0198		0.1953	0.1953		0.1797	0.1797	0.0000	2,098.1415	2,098.1415	0.6200		2,111.1620
Total	1.7118	18.9334	14.3304	0.0198	0.1594	0.1953	0.3546	0.0241	0.1797	0.2038	0.0000	2,098.1415	2,098.1415	0.6200		2,111.1620

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
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Category	lb/day										lb/day					
Hauling	46.1093	40.4154	138.9103	0.3198	22.5979	0.6652	23.2631	6.0419	0.6109	6.6528		29,761.0891	29,761.0891	1.3781		29,790.0293
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	0.6684	0.5884	2.1456	4.4900e-003	0.3135	9.4300e-003	0.3230	0.0839	8.6600e-003	0.0925		417.6273	417.6273	0.0198		418.0425
Total	46.7776	41.0038	141.0559	0.3243	22.9114	0.6747	23.5861	6.1258	0.6195	6.7453		30,178.7164	30,178.7164	1.3979		30,208.0718

3.4 Planting, Fencing, Signage, Irrigation - 2014

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					0.0000	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

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	1.0143	5.7513	8.1364	0.0108	0.2408	0.0966	0.3374	0.0660	0.0888	0.1548		1,104.6442	1,104.6442	0.0111		1,104.8773

Worker	0.6684	0.5884	2.1456	4.4900e-003	0.3135	9.4300e-003	0.3230	0.0839	8.6600e-003	0.0925		417.6273	417.6273	0.0198		418.0425
Total	1.6827	6.3396	10.2820	0.0153	0.5543	0.1060	0.6603	0.1498	0.0974	0.2473		1,522.2715	1,522.2715	0.0309		1,522.9197

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					0.0000	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

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	1.0143	5.7513	8.1364	0.0108	0.2408	0.0966	0.3374	0.0660	0.0888	0.1548		1,104.6442	1,104.6442	0.0111			1,104.8773
Worker	0.6684	0.5884	2.1456	4.4900e-003	0.3135	9.4300e-003	0.3230	0.0839	8.6600e-003	0.0925		417.6273	417.6273	0.0198			418.0425
Total	1.6827	6.3396	10.2820	0.0153	0.5543	0.1060	0.6603	0.1498	0.0974	0.2473		1,522.2715	1,522.2715	0.0309			1,522.9197

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C- NW	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.535364	0.058953	0.178683	0.128422	0.038588	0.006258	0.015164	0.027061	0.002429	0.003187	0.003695	0.000550	0.001645

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	0.0000					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

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000

Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
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7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Renourishment Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2023
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - project specific information

Off-road Equipment -

Off-road Equipment - project specific information

Trips and VMT - project specific information

Grading -

Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tbiConstEquipMitigation	DPF	No Change	Level 3
tbiConstEquipMitigation	DPF	No Change	Level 3
tbiConstEquipMitigation	DPF	No Change	Level 3
tbiConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstructionPhase	NumDays	0.00	125.00
tblGrading	MaterialImported	0.00	450,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	1.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblProjectCharacteristics	OperationalYear	2014	2023
tblTripsAndVMT	HaulingTripNumber	56,250.00	64,300.00
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripNumber	53.00	24.00
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	1.2790	4.6514	6.6041	0.0204	2.2993	0.1862	2.4855	0.8674	0.1724	1.0398	0.0000	1,587.6737	1,587.6737	0.2830	0.0000	1,593.6163
2024	0.7991	2.8050	4.1543	0.0132	2.2561	0.1105	2.3667	0.8513	0.1023	0.9536	0.0000	1,023.4447	1,023.4447	0.1820	0.0000	1,027.2672
Total	2.0781	7.4564	10.7584	0.0336	4.5555	0.2967	4.8522	1.7187	0.2747	1.9934	0.0000	2,611.1185	2,611.1185	0.4650	0.0000	2,620.8835

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	1.2790	4.6514	6.6041	0.0204	1.4418	0.0413	1.4831	0.4586	0.0382	0.4968	0.0000	1,587.6727	1,587.6727	0.2830	0.0000	1,593.6152
2024	0.7991	2.8050	4.1543	0.0132	1.3986	0.0253	1.4239	0.4425	0.0234	0.4659	0.0000	1,023.4441	1,023.4441	0.1820	0.0000	1,027.2665
Total	2.0781	7.4564	10.7584	0.0336	2.8405	0.0666	2.9070	0.9011	0.0615	0.9626	0.0000	2,611.1168	2,611.1168	0.4650	0.0000	2,620.8818

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	37.65	77.57	40.09	47.57	77.60	51.71	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	0.0000					0.0000	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

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000					0.0000	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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Renourishment	Grading	9/15/2023	3/7/2024	5	125	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Renourishment	Excavators	1	11.00	162	0.38
Renourishment	Generator Sets	2	11.00	84	0.74
Renourishment	Off-Highway Trucks	7	11.00	400	0.38
Renourishment	Other General Industrial Equipment	2	11.00	87	0.34
Renourishment	Other Material Handling Equipment	3	11.00	167	0.40
Renourishment	Rubber Tired Dozers	2	11.00	255	0.40
Renourishment	Scrapers	2	11.00	361	0.48
Renourishment	Tractors/Loaders/Backhoes	2	11.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Renourishment	21	24.00	48.00	64,300.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Renourishment - 2023

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					

Fugitive Dust					1.2428	0.0000	1.2428	0.5925	0.0000	0.5925	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4629	3.9920	4.0961	9.7600e-003		0.1705	0.1705		0.1579	0.1579	0.0000	855.7364	855.7364	0.2603	0.0000	861.2018
Total	0.4629	3.9920	4.0961	9.7600e-003	1.2428	0.1705	1.4133	0.5925	0.1579	0.7504	0.0000	855.7364	855.7364	0.2603	0.0000	861.2018

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	0.7809	0.5550	2.1973	9.9400e-003	1.0341	0.0131	1.0472	0.2688	0.0121	0.2809	0.0000	678.6937	678.6937	0.0220	0.0000	679.1551
Vendor	0.0209	0.0940	0.2670	4.9000e-004	0.0108	2.3600e-003	0.0132	2.9700e-003	2.1700e-003	5.1400e-003	0.0000	41.2031	41.2031	3.5000e-004	0.0000	41.2105
Worker	0.0143	0.0104	0.0437	1.8000e-004	0.0117	2.4000e-004	0.0119	3.1400e-003	2.2000e-004	3.3500e-003	0.0000	12.0406	12.0406	4.0000e-004	0.0000	12.0489
Total	0.8160	0.6594	2.5080	0.0106	1.0566	0.0157	1.0723	0.2750	0.0145	0.2894	0.0000	731.9374	731.9374	0.0227	0.0000	732.4145

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					0.3853	0.0000	0.3853	0.1837	0.0000	0.1837	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4629	3.9920	4.0961	9.7600e-003		0.0256	0.0256		0.0237	0.0237	0.0000	855.7354	855.7354	0.2603	0.0000	861.2008
Total	0.4629	3.9920	4.0961	9.7600e-003	0.3853	0.0256	0.4108	0.1837	0.0237	0.2074	0.0000	855.7354	855.7354	0.2603	0.0000	861.2008

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	0.7809	0.5550	2.1973	9.9400e-003	1.0341	0.0131	1.0472	0.2688	0.0121	0.2809	0.0000	678.6937	678.6937	0.0220	0.0000	679.1551
Vendor	0.0209	0.0940	0.2670	4.9000e-004	0.0108	2.3600e-003	0.0132	2.9700e-003	2.1700e-003	5.1400e-003	0.0000	41.2031	41.2031	3.5000e-004	0.0000	41.2105
Worker	0.0143	0.0104	0.0437	1.8000e-004	0.0117	2.4000e-004	0.0119	3.1400e-003	2.2000e-004	3.3500e-003	0.0000	12.0406	12.0406	4.0000e-004	0.0000	12.0489
Total	0.8160	0.6594	2.5080	0.0106	1.0566	0.0157	1.0723	0.2750	0.0145	0.2894	0.0000	731.9374	731.9374	0.0227	0.0000	732.4145

3.2 Renourishment - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2428	0.0000	1.2428	0.5925	0.0000	0.5925	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2875	2.3871	2.5941	6.2900e-003		0.1003	0.1003		0.0929	0.0929	0.0000	551.7696	551.7696	0.1677	0.0000	555.2909
Total	0.2875	2.3871	2.5941	6.2900e-003	1.2428	0.1003	1.3431	0.5925	0.0929	0.6854	0.0000	551.7696	551.7696	0.1677	0.0000	555.2909

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
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Category	tons/yr										MT/yr					
	Hauling	0.4894	0.3508	1.3631	6.4700e-003	0.9989	8.5600e-003	1.0074	0.2549	7.9000e-003	0.2628	0.0000	437.2983	437.2983	0.0139	0.0000
Vendor	0.0133	0.0605	0.1700	3.1000e-004	6.9700e-003	1.5200e-003	8.4900e-003	1.9100e-003	1.4000e-003	3.3200e-003	0.0000	26.6191	26.6191	2.3000e-004	0.0000	26.6239
Worker	8.9500e-003	6.5800e-003	0.0272	1.1000e-004	7.5500e-003	1.5000e-004	7.7000e-003	2.0200e-003	1.4000e-004	2.1700e-003	0.0000	7.7578	7.7578	2.5000e-004	0.0000	7.7630
Total	0.5116	0.4179	1.5602	6.8900e-003	1.0134	0.0102	1.0236	0.2588	9.4400e-003	0.2683	0.0000	471.6751	471.6751	0.0143	0.0000	471.9763

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					0.3853	0.0000	0.3853	0.1837	0.0000	0.1837	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2875	2.3871	2.5941	6.2900e-003		0.0150	0.0150		0.0139	0.0139	0.0000	551.7690	551.7690	0.1677	0.0000	555.2902
Total	0.2875	2.3871	2.5941	6.2900e-003	0.3853	0.0150	0.4003	0.1837	0.0139	0.1976	0.0000	551.7690	551.7690	0.1677	0.0000	555.2902

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	0.4894	0.3508	1.3631	6.4700e-003	0.9989	8.5600e-003	1.0074	0.2549	7.9000e-003	0.2628	0.0000	437.2983	437.2983	0.0139	0.0000	437.5894
Vendor	0.0133	0.0605	0.1700	3.1000e-004	6.9700e-003	1.5200e-003	8.4900e-003	1.9100e-003	1.4000e-003	3.3200e-003	0.0000	26.6191	26.6191	2.3000e-004	0.0000	26.6239
Worker	8.9500e-003	6.5800e-003	0.0272	1.1000e-004	7.5500e-003	1.5000e-004	7.7000e-003	2.0200e-003	1.4000e-004	2.1700e-003	0.0000	7.7578	7.7578	2.5000e-004	0.0000	7.7630

Total	0.5116	0.4179	1.5602	6.8900e-003	1.0134	0.0102	1.0236	0.2588	9.4400e-003	0.2683	0.0000	471.6751	471.6751	0.0143	0.0000	471.9763
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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.522550	0.057918	0.180146	0.126595	0.040312	0.006532	0.017397	0.036650	0.002593	0.003201	0.003751	0.000525	0.001830

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

Consumer Products	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

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Renourishment
Los Angeles-South Coast County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Renourishment	0.00	0.00	0.00	0.00	0.78	0.78	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Excavators	Diesel	No Change	1	1	Level 3	0.00
Generator Sets	Diesel	No Change	2	2	Level 3	0.00
Off-Highway Trucks	Diesel	No Change	7	7	Level 3	0.00
Other General Industrial Equipment	Diesel	No Change	2	2	Level 3	0.00
Other Material Handling Equipment	Diesel	No Change	3	3	Level 3	0.00
Rubber Tired Dozers	Diesel	No Change	2	2	Level 3	0.00
Scrapers	Diesel	No Change	2	2	Level 3	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	2	2	Level 3	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr						Unmitigated mt/yr						

Excavators	1.63300E-002	1.31420E-001	2.87300E-001	4.60000E-004	6.45000E-003	5.93000E-003	0.00000E+000	3.99809E+001	3.99809E+001	1.29300E-002	0.00000E+000	4.02524E+001
Generator Sets	5.11700E-002	4.55220E-001	6.30300E-001	1.13000E-003	2.08600E-002	2.08600E-002	0.00000E+000	9.71450E+001	9.71450E+001	4.14000E-003	0.00000E+000	9.72320E+001
Off-Highway Trucks	2.99990E-001	2.07931E+000	1.95941E+000	7.92000E-003	7.50700E-002	6.90600E-002	0.00000E+000	6.95095E+002	6.95095E+002	2.24810E-001	0.00000E+000	6.99816E+002
Other General Industrial	2.68600E-002	2.54580E-001	3.26750E-001	4.40000E-004	1.43100E-002	1.31700E-002	0.00000E+000	3.82321E+001	3.82321E+001	1.23700E-002	0.00000E+000	3.84918E+001
Other Material Handling	6.48600E-002	5.21790E-001	9.64310E-001	1.48000E-003	2.81800E-002	2.59300E-002	0.00000E+000	1.30120E+002	1.30120E+002	4.20800E-002	0.00000E+000	1.31004E+002
Rubber Tired Dozers	1.34440E-001	1.31725E+000	1.11204E+000	1.53000E-003	5.99800E-002	5.51800E-002	0.00000E+000	1.34483E+002	1.34483E+002	4.34900E-002	0.00000E+000	1.35396E+002
Scrapers	1.31250E-001	1.36148E+000	1.02629E+000	2.57000E-003	5.35400E-002	4.92600E-002	0.00000E+000	2.25416E+002	2.25416E+002	7.29000E-002	0.00000E+000	2.26947E+002
Tractors/Loaders/Bulldozers	2.55100E-002	2.58050E-001	3.83800E-001	5.40000E-004	1.24000E-002	1.14100E-002	0.00000E+000	4.70342E+001	4.70342E+001	1.52100E-002	0.00000E+000	4.73536E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Excavators	1.63300E-002	1.31420E-001	2.87300E-001	4.60000E-004	9.70000E-004	8.90000E-004	0.00000E+000	3.99809E+001	3.99809E+001	1.29300E-002	0.00000E+000	4.02524E+001
Generator Sets	5.11700E-002	4.55220E-001	6.30300E-001	1.13000E-003	3.13000E-003	3.13000E-003	0.00000E+000	9.71449E+001	9.71449E+001	4.14000E-003	0.00000E+000	9.72318E+001
Off-Highway Trucks	2.99990E-001	2.07931E+000	1.95941E+000	7.92000E-003	1.12600E-002	1.03600E-002	0.00000E+000	6.95094E+002	6.95094E+002	2.24810E-001	0.00000E+000	6.99815E+002
Other General Industrial Equipment	2.68600E-002	2.54580E-001	3.26750E-001	4.40000E-004	2.15000E-003	1.98000E-003	0.00000E+000	3.82321E+001	3.82321E+001	1.23700E-002	0.00000E+000	3.84918E+001
Other Material Handling Equipment	6.48600E-002	5.21790E-001	9.64300E-001	1.48000E-003	4.23000E-003	3.89000E-003	0.00000E+000	1.30120E+002	1.30120E+002	4.20800E-002	0.00000E+000	1.31004E+002
Rubber Tired Dozers	1.34440E-001	1.31725E+000	1.11204E+000	1.53000E-003	9.00000E-003	8.28000E-003	0.00000E+000	1.34482E+002	1.34482E+002	4.34900E-002	0.00000E+000	1.35396E+002
Scrapers	1.31240E-001	1.36148E+000	1.02629E+000	2.57000E-003	8.03000E-003	7.39000E-003	0.00000E+000	2.25416E+002	2.25416E+002	7.29000E-002	0.00000E+000	2.26947E+002
Tractors/Loaders/Bulldozers	2.55100E-002	2.58050E-001	3.83800E-001	5.40000E-004	1.86000E-003	1.71000E-003	0.00000E+000	4.70341E+001	4.70341E+001	1.52100E-002	0.00000E+000	4.73535E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.49612E-001	8.49916E-001	0.00000E+000	1.00048E-006	1.00048E-006	0.00000E+000	0.00000E+000	1.24216E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.49952E-001	8.49952E-001	0.00000E+000	1.13233E-006	1.13233E-006	0.00000E+000	0.00000E+000	1.23416E-006
Off-Highway Trucks	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.50007E-001	8.49986E-001	0.00000E+000	1.19408E-006	1.19408E-006	0.00000E+000	0.00000E+000	1.18603E-006
Other General Industrial Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.49755E-001	8.49658E-001	0.00000E+000	1.04624E-006	1.04624E-006	0.00000E+000	0.00000E+000	1.29898E-006

Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			

No	Parking Policy Pricing	On-street Market Pricing	0.00	
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00	
No	Transit Improvements	Provide BRT System	0.00	
No	Transit Improvements	Expand Transit Network	0.00	
No	Transit Improvements	Increase Transit Frequency	0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00	
		Land Use and Site Enhancement Subtotal	0.00	
No	Commute	Implement Trip Reduction Program		
No	Commute	Transit Subsidy		
No	Commute	Implement Employee Parking "Cash Out"		
No	Commute	Workplace Parking Charge		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	
No	Commute	Market Commute Trip Reduction Option	0.00	
No	Commute	Employee Vanpool/Shuttle	0.00	2.00
No	Commute	Provide Ride Sharing Program		
	Commute	Commute Subtotal	0.00	
No	School Trip	Implement School Bus Program	0.00	
		Total VMT Reduction	0.00	

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	50.00

No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	250.00
No	Use Low VOC Paint (Non-residential Exterior)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	

No	Install low-flow Kitchen faucet	18.00
No	Install low-flow Toilet	20.00
No	Install low-flow Shower	20.00
No	Turf Reduction	
No	Use Water Efficient Irrigation Systems	6.10
No	Water Efficient Landscape	

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Broad Beach - Renourishment
Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2023
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use -
- Construction Phase - project specific information
- Off-road Equipment -
- Off-road Equipment - project specific information
- Trips and VMT - project specific information
- Grading -
- Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstructionPhase	NumDays	0.00	125.00
tblGrading	MaterialImported	0.00	450,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	1.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblProjectCharacteristics	OperationalYear	2014	2023
tblTripsAndVMT	HaulingTripNumber	56,250.00	64,300.00
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripNumber	53.00	24.00
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2023	32.5560	121.1312	175.5996	0.5450	48.2687	4.8999	53.1686	16.8575	4.5369	21.3944	0.0000	46,688.5896	46,688.5896	8.2084	0.0000	46,860.9662
2024	31.5366	113.2524	171.2876	0.5474	62.1397	4.5115	66.6512	20.2626	4.1758	24.4383	0.0000	46,676.8841	46,676.8841	8.1894	0.0000	46,848.8604
Total	64.0927	234.3836	346.8872	1.0924	110.4084	9.4113	119.8197	37.1201	8.7127	45.8328	0.0000	93,365.4737	93,365.4737	16.3978	0.0000	93,709.8266

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					
2023	32.5560	121.1312	175.5996	0.5450	34.5486	1.0860	35.6346	10.3165	1.0042	11.3208	0.0000	46,688.5895	46,688.5895	8.2084	0.0000	46,860.9662
2024	31.5366	113.2524	171.2876	0.5474	48.4196	1.0318	49.4514	13.7216	0.9538	14.6754	0.0000	46,676.8841	46,676.8841	8.1894	0.0000	46,848.8604
Total	64.0927	234.3836	346.8872	1.0924	82.9682	2.1178	85.0860	24.0381	1.9581	25.9962	0.0000	93,365.4737	93,365.4737	16.3978	0.0000	93,709.8266

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	24.85	77.50	28.99	35.24	77.53	43.28	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	0.0000					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

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	0.0000					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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Renourishment	Grading	9/15/2023	3/7/2024	5	125	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Renourishment	Excavators	1	11.00	162	0.38
Renourishment	Generator Sets	2	11.00	84	0.74
Renourishment	Off-Highway Trucks	7	11.00	400	0.38
Renourishment	Other General Industrial Equipment	2	11.00	87	0.34
Renourishment	Other Material Handling Equipment	3	11.00	167	0.40
Renourishment	Rubber Tired Dozers	2	11.00	255	0.40
Renourishment	Scrapers	2	11.00	361	0.48
Renourishment	Tractors/Loaders/Backhoes	2	11.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Renourishment	21	24.00	48.00	64,300.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Renourishment - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.8842	0.0000	19.8842	9.4797	0.0000	9.4797			0.0000			0.0000
Off-Road	12.1820	105.0522	107.7923	0.2568		4.4868	4.4868		4.1561	4.1561		24,823.36 57	24,823.365 7	7.5496		24,981.907 7
Total	12.1820	105.0522	107.7923	0.2568	19.8842	4.4868	24.3711	9.4797	4.1561	13.6358		24,823.36 57	24,823.365 7	7.5496		24,981.907 7

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	19.4905	13.4524	60.7642	0.2706	27.7811	0.3448	28.1259	7.2145	0.3181	7.5326		20,306.46 10	20,306.461 0	0.6373		20,319.843 3
Vendor	0.5256	2.3732	5.8676	0.0128	0.2893	0.0620	0.3513	0.0793	0.0570	0.1363		1,198.544 8	1,198.5448	0.0101		1,198.7560
Worker	0.3580	0.2534	1.1754	4.8000e-003	0.3141	6.2000e-003	0.3203	0.0841	5.7200e-003	0.0898		360.2181	360.2181	0.0115		360.4592
Total	20.3740	16.0790	67.8073	0.2882	28.3845	0.4130	28.7975	7.3778	0.3808	7.7587		21,865.22 39	21,865.223 9	0.6588		21,879.058 5

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					6.1641	0.0000	6.1641	2.9387	0.0000	2.9387			0.0000			0.0000
Off-Road	12.1820	105.0522	107.7923	0.2568		0.6730	0.6730		0.6234	0.6234	0.0000	24,823.3656	24,823.3656	7.5496		24,981.9077
Total	12.1820	105.0522	107.7923	0.2568	6.1641	0.6730	6.8371	2.9387	0.6234	3.5621	0.0000	24,823.3656	24,823.3656	7.5496		24,981.9077

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	19.4905	13.4524	60.7642	0.2706	27.7811	0.3448	28.1259	7.2145	0.3181	7.5326		20,306.4610	20,306.4610	0.6373		20,319.8433
Vendor	0.5256	2.3732	5.8676	0.0128	0.2893	0.0620	0.3513	0.0793	0.0570	0.1363		1,198.5448	1,198.5448	0.0101		1,198.7560
Worker	0.3580	0.2534	1.1754	4.8000e-003	0.3141	6.2000e-003	0.3203	0.0841	5.7200e-003	0.0898		360.2181	360.2181	0.0115		360.4592
Total	20.3740	16.0790	67.8073	0.2882	28.3845	0.4130	28.7975	7.3778	0.3808	7.7587		21,865.2239	21,865.2239	0.6588		21,879.0585

3.2 Renourishment - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.8842	0.0000	19.8842	9.4797	0.0000	9.4797			0.0000			0.0000
Off-Road	11.7349	97.4341	105.8811	0.2568		4.0937	4.0937		3.7906	3.7906		24,825.3833	24,825.3833	7.5442		24,983.8124
Total	11.7349	97.4341	105.8811	0.2568	19.8842	4.0937	23.9779	9.4797	3.7906	13.2702		24,825.3833	24,825.3833	7.5442		24,983.8124

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	18.9347	13.2010	58.4702	0.2729	41.6520	0.3494	42.0014	10.6195	0.3224	10.9419		20,290.6037	20,290.6037	0.6237		20,303.7014
Vendor	0.5194	2.3685	5.8038	0.0128	0.2893	0.0621	0.3514	0.0793	0.0571	0.1364		1,200.9692	1,200.9692	0.0102		1,201.1829
Worker	0.3477	0.2488	1.1325	4.8400e-003	0.3141	6.2800e-003	0.3204	0.0841	5.8000e-003	0.0899		359.9281	359.9281	0.0112		360.1638
Total	19.8017	15.8183	65.4065	0.2906	42.2555	0.4178	42.6732	10.7829	0.3852	11.1681		21,851.5009	21,851.5009	0.6451		21,865.0481

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					6.1641	0.0000	6.1641	2.9387	0.0000	2.9387			0.0000			0.0000
Off-Road	11.7349	97.4341	105.8811	0.2568		0.6141	0.6141		0.5686	0.5686	0.0000	24,825.3833	24,825.3833	7.5442		24,983.8124
Total	11.7349	97.4341	105.8811	0.2568	6.1641	0.6141	6.7782	2.9387	0.5686	3.5073	0.0000	24,825.3833	24,825.3833	7.5442		24,983.8124

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	18.9347	13.2010	58.4702	0.2729	41.6520	0.3494	42.0014	10.6195	0.3224	10.9419		20,290.6037	20,290.6037	0.6237		20,303.7014
Vendor	0.5194	2.3685	5.8038	0.0128	0.2893	0.0621	0.3514	0.0793	0.0571	0.1364		1,200.9692	1,200.9692	0.0102		1,201.1829
Worker	0.3477	0.2488	1.1325	4.8400e-003	0.3141	6.2800e-003	0.3204	0.0841	5.8000e-003	0.0899		359.9281	359.9281	0.0112		360.1638
Total	19.8017	15.8183	65.4065	0.2906	42.2555	0.4178	42.6732	10.7829	0.3852	11.1681		21,851.5009	21,851.5009	0.6451		21,865.0481

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.522550	0.057918	0.180146	0.126595	0.040312	0.006532	0.017397	0.036650	0.002593	0.003201	0.003751	0.000525	0.001830

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	0.0000					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

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Broad Beach - Renourishment Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	8			Operational Year	2023
Utility Company					
CO2 Intensity (lb/MWhr)	0	CH4 Intensity (lb/MWhr)	0	N2O Intensity (lb/MWhr)	0

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use -
- Construction Phase - project specific information
- Off-road Equipment -
- Off-road Equipment - project specific information
- Trips and VMT - project specific information
- Grading -
- Construction Off-road Equipment Mitigation - project specific information

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstructionPhase	NumDays	0.00	125.00
tblGrading	MaterialImported	0.00	450,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	1.00	11.00
tblOffRoadEquipment	UsageHours	6.00	11.00
tblProjectCharacteristics	OperationalYear	2014	2023
tblTripsAndVMT	HaulingTripNumber	56,250.00	64,300.00
tblTripsAndVMT	HaulingVehicleClass		EMFAC_Mix
tblTripsAndVMT	VendorVehicleClass		HHDT
tblTripsAndVMT	WorkerTripLength	14.70	16.90
tblTripsAndVMT	WorkerTripNumber	53.00	24.00
tblTripsAndVMT	WorkerVehicleClass		EMFAC_Mix

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					
2023	36.4864	122.0378	172.8999	0.5325	48.2687	4.9004	53.1691	16.8575	4.5375	21.3950	0.0000	45,815.5157	45,815.5157	8.2090	0.0000	45,987.9052
2024	35.3879	114.1297	168.7160	0.5348	62.1397	4.5120	66.6517	20.2626	4.1763	24.4389	0.0000	45,808.2002	45,808.2002	8.1900	0.0000	45,980.1895
Total	71.8742	236.1675	341.6159	1.0672	110.4084	9.4125	119.8209	37.1201	8.7138	45.8339	0.0000	91,623.7160	91,623.7160	16.3990	0.0000	91,968.0947

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					
2023	36.4864	122.0378	172.8999	0.5325	34.5486	1.0866	35.6352	10.3165	1.0048	11.3213	0.0000	45,815.5157	45,815.5157	8.2090	0.0000	45,987.9052
2024	35.3879	114.1297	168.7160	0.5348	48.4196	1.0324	49.4520	13.7216	0.9544	14.6759	0.0000	45,808.2002	45,808.2002	8.1900	0.0000	45,980.1895
Total	71.8742	236.1675	341.6159	1.0672	82.9682	2.1190	85.0872	24.0381	1.9591	25.9972	0.0000	91,623.7159	91,623.7159	16.3990	0.0000	91,968.0946

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	24.85	77.49	28.99	35.24	77.52	43.28	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	0.0000					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

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	0.0000					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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Renourishment	Grading	9/15/2023	3/7/2024	5	125	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Renourishment	Excavators	1	11.00	162	0.38
Renourishment	Generator Sets	2	11.00	84	0.74
Renourishment	Off-Highway Trucks	7	11.00	400	0.38
Renourishment	Other General Industrial Equipment	2	11.00	87	0.34
Renourishment	Other Material Handling Equipment	3	11.00	167	0.40
Renourishment	Rubber Tired Dozers	2	11.00	255	0.40
Renourishment	Scrapers	2	11.00	361	0.48
Renourishment	Tractors/Loaders/Backhoes	2	11.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Renourishment	21	24.00	48.00	64,300.00	16.90	6.90	45.00	EMFAC_Mix	HHDT	EMFAC_Mix

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Renourishment - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.8842	0.0000	19.8842	9.4797	0.0000	9.4797			0.0000			0.0000
Off-Road	12.1820	105.0522	107.7923	0.2568		4.4868	4.4868		4.1561	4.1561		24,823.3657	24,823.3657	7.5496		24,981.9077
Total	12.1820	105.0522	107.7923	0.2568	19.8842	4.4868	24.3711	9.4797	4.1561	13.6358		24,823.3657	24,823.3657	7.5496		24,981.9077

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	23.3041	14.2857	56.6017	0.2584	27.7811	0.3451	28.1261	7.2145	0.3183	7.5328		19,456.3788	19,456.3788	0.6375		19,469.7653
Vendor	0.5755	2.4317	7.3693	0.0127	0.2893	0.0623	0.3516	0.0793	0.0573	0.1366		1,190.6476	1,190.6476	0.0105		1,190.8674
Worker	0.4247	0.2683	1.1366	4.5800e-003	0.3141	6.2100e-003	0.3203	0.0841	5.7300e-003	0.0898		345.1236	345.1236	0.0115		345.3649
Total	24.3043	16.9856	65.1076	0.2757	28.3845	0.4136	28.7981	7.3778	0.3814	7.7592		20,992.1501	20,992.1501	0.6594		21,005.9975

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					6.1641	0.0000	6.1641	2.9387	0.0000	2.9387			0.0000			0.0000
Off-Road	12.1820	105.0522	107.7923	0.2568		0.6730	0.6730		0.6234	0.6234	0.0000	24,823.3656	24,823.3656	7.5496		24,981.9077
Total	12.1820	105.0522	107.7923	0.2568	6.1641	0.6730	6.8371	2.9387	0.6234	3.5621	0.0000	24,823.3656	24,823.3656	7.5496		24,981.9077

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	23.3041	14.2857	56.6017	0.2584	27.7811	0.3451	28.1261	7.2145	0.3183	7.5328		19,456.3788	19,456.3788	0.6375		19,469.7653
Vendor	0.5755	2.4317	7.3693	0.0127	0.2893	0.0623	0.3516	0.0793	0.0573	0.1366		1,190.6476	1,190.6476	0.0105		1,190.8674
Worker	0.4247	0.2683	1.1366	4.5800e-003	0.3141	6.2100e-003	0.3203	0.0841	5.7300e-003	0.0898		345.1236	345.1236	0.0115		345.3649
Total	24.3043	16.9856	65.1076	0.2757	28.3845	0.4136	28.7981	7.3778	0.3814	7.7592		20,992.1501	20,992.1501	0.6594		21,005.9975

3.2 Renourishment - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.8842	0.0000	19.8842	9.4797	0.0000	9.4797			0.0000			0.0000
Off-Road	11.7349	97.4341	105.8811	0.2568		4.0937	4.0937		3.7906	3.7906		24,825.3833	24,825.3833	7.5442		24,983.8124
Total	11.7349	97.4341	105.8811	0.2568	19.8842	4.0937	23.9779	9.4797	3.7906	13.2702		24,825.3833	24,825.3833	7.5442		24,983.8124

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	22.6715	14.0058	54.4607	0.2606	41.6520	0.3496	42.0016	10.6195	0.3225	10.9421		19,444.8379	19,444.8379	0.6239		19,457.9397
Vendor	0.5685	2.4267	7.2789	0.0128	0.2893	0.0624	0.3518	0.0793	0.0574	0.1367		1,193.0717	1,193.0717	0.0106		1,193.2941
Worker	0.4130	0.2631	1.0954	4.6200e-003	0.3141	6.2900e-003	0.3204	0.0841	5.8100e-003	0.0899		344.9074	344.9074	0.0112		345.1433
Total	23.6530	16.6956	62.8350	0.2779	42.2555	0.4183	42.6738	10.7829	0.3858	11.1687		20,982.8170	20,982.8170	0.6457		20,996.3771

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					6.1641	0.0000	6.1641	2.9387	0.0000	2.9387			0.0000			0.0000
Off-Road	11.7349	97.4341	105.8811	0.2568		0.6141	0.6141		0.5686	0.5686	0.0000	24,825.3833	24,825.3833	7.5442		24,983.8124
Total	11.7349	97.4341	105.8811	0.2568	6.1641	0.6141	6.7782	2.9387	0.5686	3.5073	0.0000	24,825.3833	24,825.3833	7.5442		24,983.8124

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	22.6715	14.0058	54.4607	0.2606	41.6520	0.3496	42.0016	10.6195	0.3225	10.9421		19,444.8379	19,444.8379	0.6239		19,457.9397
Vendor	0.5685	2.4267	7.2789	0.0128	0.2893	0.0624	0.3518	0.0793	0.0574	0.1367		1,193.0717	1,193.0717	0.0106		1,193.2941
Worker	0.4130	0.2631	1.0954	4.6200e-003	0.3141	6.2900e-003	0.3204	0.0841	5.8100e-003	0.0899		344.9074	344.9074	0.0112		345.1433
Total	23.6530	16.6956	62.8350	0.2779	42.2555	0.4183	42.6738	10.7829	0.3858	11.1687		20,982.8170	20,982.8170	0.6457		20,996.3771

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.522550	0.057918	0.180146	0.126595	0.040312	0.006532	0.017397	0.036650	0.002593	0.003201	0.003751	0.000525	0.001830

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

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	0.0000					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

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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